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A D D R E S S
TO THE
ROYAL GEOGRAPHICAL SOCIETY
OF LONDON;

Delivered at the Anniversary Meeting on the 28th May, 1855,

BY THE RIGHT HON. THE EARL OF ELLESMERE,
K.G., D.C.L., &c.,
PRESIDENT.

OBITUARY.

THE melancholy list of our losses for the last year commenced with the name of one who was an ornament to the military profession, Sir F. Adam. I have now, as I had then, to pay a tribute, as well of private affection and regard, as of public respect, to a distinguished officer of whom death has deprived us, General Sir A. Barnard. To recite his professional career would be to follow the British army from Lisbon to Waterloo. For the particulars of it I refer you to Napier and the ‘Despatches.’ I might appeal to their authority, I might appeal to that of Lord Raglan, to confirm me when I say, that among those who fought under the eye of Wellington, and who earned the glorious reward of his esteem and confidence, there was no better soldier—I am sure there was no kinder and better man—than the late Governor of Chelsea Hospital. As a proof of the confidence of the Duke, I may single out the fact, that when the chances of war had placed an English garrison at Paris, he was selected for the office of commandant. I have no doubt of the grounds of that selection. They were, that from his nature and his disposition he was, of all others, the man—in other respects competent for such command—the least likely to exercise it with any insolence of success, or any want of regard to the feelings of a gallant enemy. I knew him well, almost from the date of his retirement from active service. He retained to an advanced age singular

activity of body and mind. He was a bold rider, an accomplished musician, and, at an age when few are adventurous, he underwent the fatigues of an extensive tour in Syria. Trivial details these, but they may be excused as springing from the recollection of a friendship of many years. He passed his latter years in that honourable retirement at Chelsea which was the appropriate reward of his professional services, surrounded by friends—

“ Well pleased to see reflection’s genial ray
Gild the calm close of valour’s various day ;”

and where those who had followed him to battle, demanded and obtained the honour of bearing their old commander to the grave.

Sir Henry Thomas De la Beche, the eminent geologist and physical geographer of our day, possessed a lively perception of the intimate connection, which must ever subsist between the structure of the crust of the earth and its outlines. Early in life, when studying at the Military College of Marlow, he already exhibited those powers of the pencil, and that facility of sketching the forms of ground, which led him to acquire a knowledge of the rocks beneath the soil.

Entering into the Geological Society in the year 1819, at the early age of twenty-one, he rapidly rose in the estimation of his brethren of the hammer, whether by his good eye for surveying a country, or by his readiness in delineating it, accompanied by sketches of its pictorial features and chief fossils.

From the year 1819 onwards, the Geological Society was indebted to him for graphic descriptions of the southern and south-western coasts of England and Wales, as conveyed in a series of highly valuable memoirs ; whilst in foreign geology, his publications on parts of France, Nice, La Spezia (in Italy), and, above all, his excellent memoir on Jamaica, where his paternal estate was situated, justly established his reputation as a geologist and physical geographer.

The author of such labours was therefore well qualified to produce valuable general works, one of which, the ‘ Manual of Geology,’ the first effort of the kind, was for many years the standard to which all students of our sister science appealed ; whilst his ‘ Researches in Theoretical Geology ’ are, I am assured, of the highest order of merit. In fact, the last-mentioned volume, indicating, as it does, his acquaintance with several branches of science, was the admiration of all his associates in exhibiting those powers of mind which enabled him shortly afterwards to rise to that station in which he rendered so much public service to his country.

Whilst the great merits of our deceased member will be appropriately

dwelt upon by the Presidents of the Royal and Geological Societies, I may be permitted to express my own hearty approbation in common, I am sure, with every one whom I now address, of the energy and ability with which he suggested the great design of a complete geological illustration of the trigonometrical maps of the British Isles, and thereby induced the Government to found and rear under his auspices, that great national establishment, the Museum of Practical Geology. To use the language of his successor, Sir Roderick Murchison, when receiving for his friend—then, alas! within ten weeks of his death—the Wollaston Medal of the Geological Society—

“This design, entirely his own conception, was begun, carried out, and matured by the combination of scientific skill with those *practical* evidences of the value of his project, in the absence of which he never could have commanded success in an undertaking which, though applauded by ourselves, was alien to the pursuits of the great body of Englishmen.

“And how did he succeed? At his own expense he traced the boundaries and relations of certain rock-formations, and, laying them down on the Ordnance Survey Maps, accompanied by illustrative Sections, he thus took the first step in leading public men (otherwise little versed in our science) to see the good which must result from the extensive application of such a scheme, in making all proprietors alive to the importance of obtaining a better acquaintance with the subsoil of their estates.

“Having gradually attracted the notice of the Government, and having obtained the use of rooms in Craig’s Court, and the employment of a limited sum of the public money, Sir H. De la Beche then attached to his new-born establishment, able men of science, who could decipher formations in the field, describe the fossils they contained, or chemically analyse the structure of the rocks and their associated minerals. Soon filling to repletion the small space allotted to him with models of mines, illustrative drawings, and specimens of fossils, ores, and building-stones, he convinced our rulers, and particularly that illustrious statesman Sir Robert Peel, that the dignity and interests of the country required, that an adequate and appropriate building should be erected, and exclusively devoted to the fulfilment of a project so lucidly devised, and thus far so well realised.

“Then arose, and very much after the design of the accomplished Director himself, that well-adapted edifice in Jermyn-street, *which, to the imperishable credit of its author, stands forth as the first Palace ever raised from the ground in Britain which is entirely devoted to the advancement of Science!*

“Once possessed of halls worthy of so noble an object, Sir Henry De la Beche next rendered them practically useful to the public, and on a vastly extended scale, by embracing, as necessary adjuncts, metallurgy and mechanical science in addition to the branches of knowledge previously cultivated. When we reflect on the eminence of the men of science with whom he surrounded himself, including our last and deeply lamented President Edward Forbes, and have seen how admirably they preside over their schools, what solid instruction they impart, and all directly supporting geology—when we visit the galleries in which the shells, fossils, and minerals are so arranged as to illustrate the value of the maps, sections, and publications of the Survey, we geologists must feel more strongly than any other class of men the deep obligations of our country to Sir Henry De la Beche.

“In speaking of this Museum as a School of Mines, and in recollecting that the

value of raw material produce extracted annually from the subsoil of Britain is not less than 25 millions sterling, you must be reminded of the practical and efficient manner in which Sir H. De la Beche was enabled, from long residence in mining tracts, to convey to many individual proprietors much useful knowledge in their own local language, and to send them away well pleased with his cheerful and friendly explanations. Here, however, we must extend our vision beyond our Islands, and, whether we look to Canada, Australia, the Cape, or Hindostan, we see that well-trained geologists have been sent or are going thither from our National School of Mines ; thus making our vast Colonial possessions keep pace with the advancement of the mother country."

Such a record brought before the best possible judges of the subject, and affirmed by them to be thoroughly well deserved, renders it unnecessary for me to do more than add, that the last work of Sir Henry De la Beche, in conjunction with Mr. Trenham Reeks, on the Porcelain and Potteries of our country, is a pregnant illustration of the animus with which he strove to develop the intimate connection not only of the useful, but also of the fine arts with geology, by clearly describing the lithological structure and chemical condition of the various earthy materials employed in ceramic manufacture.

A paralytic disorder, which had been creeping upon him for the last few years, carried off this eminent and highly useful man, at what may be called the premature age of 59. For, though his limbs failed, and the palsy gained rapidly on him, his mind was fresh to the last ; and such was his indomitable energy, that even though lifted into his chair for some weeks, he transacted business at the Museum of Practical Geology, only thirty-six hours before his death. He died deeply regretted by all those who knew how to value the true friendliness of the man, as united in him with the solid acquirements of the philosopher.

Besides numerous honours which were conferred upon him at home, including the Companionship of the Bath, and the Wollaston Palladium Medal of the Geological Society, Sir Henry De la Beche was a Correspondent of the Institute of France, an Honorary Member of various Foreign Academies, a Knight Commander of the Danish Order of Dannebrog, of the Belgian Order of Léopold, and an honorary member of numerous scientific bodies at home and abroad.

It is impossible to repair, as far as private acquaintance and friends are concerned, the loss of such a man ; it is not easy to provide, "*ne quid Respublica detrimenti capiat*," from such a decease. So far as his public situation is concerned, the Government has done its best in the appointment as his successor, of one whose merits and services are too well known to this Society to allow me to dwell upon them, more especially in his presence, and whose special capabilities for the direction

of the Museum of Geology are beyond comment or cavil—Sir R. Murchison. Beyond this country, and throughout the Continent, the verdict of approval will be delivered in many languages; and for common convenience, as in the former days of diplomacy, it may be summed up in Latin—"Uno avulso non deficit alter aureus."

The name of Captain John Beecroft will be found on the pages of many volumes of our Journal as a prominent participator or leader in most of the efforts that have been made to investigate the geography of the Niger and other rivers falling into the Gulf of Guinea. Our second volume records the zeal and ability with which he used the influence that he possessed, at that early period, with the chiefs on the Old Calabar River, in order to facilitate the progress of Mr. Coulthurst in the attempt to penetrate the interior of Africa in 1832, which was unhappily prevented by that traveller's death.

A company at Liverpool had sent an expedition to the Quorra in 1832, and after its dissolution the steamer which they had sent out was purchased, and placed under the command of Captain Beecroft, who ascended the Niger in her in September, 1835, as far as Adacado, a walled town, within two miles of the confluence of the Chadda.

In 1840 Captain Beecroft ascended the *Formoso* in the 'Ethiope' steamer for about 70 miles, where his progress was stopped by the exuberant vegetation of the river. He then explored the Warree, and discovered its junction with the Nun mouth of the Niger, a short way below Eboe. He continued this voyage up the Niger as far as Lever, between Rabbah and Busah.

In 1841 Captain Beecroft rendered material assistance in rescuing H.M.S. 'Albert,' after the melancholy illness and deaths of her officers and crew. After this service he ascended the Old Calabar, and then the Cross River, for 70 miles, as far as Ommann. In the following year, 1842, he again ascended the Old Calabar River, in the 'Ethiope' steamer, and explored its course as far as the Rapids, which he named after his vessel. He was subsequently appointed governor of Fernando Po; and in 1850 he is mentioned in the President's Address as consul-general for West Africa. When the Chadda expedition was despatched from England, in the 'Pleiad' steamer, it was intended that the party should proceed up the river under the experienced command of Captain Beecroft; but that veteran explorer's death took place about a week before the arrival of the party: and in him the Society has lost one of its most practical African geographers.

Mr. William Brockedon, whose contributions of portraits to our Society are familiar to the Fellows, became a student of the Royal

Academy in 1809. Zealously attached to his profession, he visited the various schools of painting abroad, and subsequently exhibited his pictures at the Royal Academy with much regularity, and with no little credit to himself.

In 1824 he made an excursion to the Alps, for the purpose of investigating the route of Hannibal. This journey suggested his great work, 'The Passes of the Alps,' the materials for which he collected during the summers of 1825, 1826, 1828, and 1829; and it is well known that he crossed the mountains 120 times. He also published several works of travels in Italy, and contributed the Savoy and Alpine portions of Murray's 'Handbook for Switzerland,' to which most of us, who have wandered in that interesting country, must feel indebted.

Of late years Mr. Brockedon directed his attention to those scientific pursuits which had such a charm for him in early life, when he invented the mode of drawing gold and silver wire by means of holes pierced in gems, which is now in general use. His claims to the distinction of a man of science rest upon numerous very ingenious practical applications, which were often successful. He succeeded in first reducing the small pieces of plumbago in its natural state to an impalpable powder, and then, by powerful pressure in vacuum, produced a cohesive attraction of the most intimate kind among the particles, exactly resembling the native blacklead. But, perhaps, he is best known from being associated in the manufacture of vulcanized Indian-rubber, and from his experiments and discoveries in that important article. Mr. Brockedon was a Fellow of the Royal and several other Societies, and was the founder of the Graphic Society.

Captain Sir P. Broke was eldest son of that distinguished officer who commanded the 'Shannon' in her engagement with the 'Chesapeake.' In the course of his naval career he served as senior lieutenant of the 'Genoa' in the action of Navarin.

Mr. J. C. Burnett, though but for a short time a member of our Society, was one from whom, had his life been spared, we might have expected valuable co-operation; for, though he died in his thirty-ninth year, he had been for twenty years in Her Majesty's service in the Surveying department in Australia. His services there were numerous and brilliant; the most arduous and memorable was an exploration conducted by him in 1842, of the dividing range of mountains from Hanging Rock to the 30th parallel. From Moreton Bay, where he was subsequently placed in chief authority, he accomplished several other surveys of importance; and the name of the Burnett River records the sense entertained of his merit by the Governor, Sir C. Fitzroy. The

press of the colony has borne ample testimony to his private virtues, as well as to his public services; and the occasion of his obsequies at Moreton Bay elicited a strong demonstration of the respect and affection in which he was held by his fellow citizens.

Our Society participates with the House of Lords in the loss of the Earl of Dartmouth. He was one who passed a long life in the unambitious, but exemplary and constant discharge of the duties attached to high station and large possessions.

Captain James Fitzjames was an officer of considerable scientific attainments in his profession, and few who, like him, entered the navy so late as 1825, have found more opportunity for service and distinction. He was most actively employed on the coast of Syria, and was repeatedly mentioned in the Gazettes of the Chinese war. He had also a large share in an enterprise connected with the special objects of this Society, Colonel Chesney's survey of the Euphrates, in the steamer of that name, during which he met with a severe accident, and was once in captivity of the Arabs for ten days. He is still better known as one of the brilliant list of Arctic commanders, and one of the principal victims of the last ill-fated expedition.

If I were to attempt, with the means and time at my disposal, to do anything like justice to the next name on my list, I should not satisfy you and should utterly dissatisfy myself, for it is that of Admiral Sir John Franklin. Even in such an audience as the one before me there may, however, be some few who, engrossed by the fame of the Arctic voyager, may not have known, or have forgotten other and earlier incidents of the naval officer's career. I may remind these, that the hero and victim of Arctic enterprise was early trained to such adventure in Australian waters, where, under command of his relative Flinders, a name dear to geographers, he shared with him the perils of shipwreck in 1803. I may mention, that were Franklin's name unknown as a navigator, it would have been entitled to honour for service under Nelson at Copenhagen and Trafalgar. With respect to the latter action, it were enough to say that he stood through it, as signal midshipman, on the poop of the 'Bellerophon,' and was one of some six out of forty, who escaped unhurt from the hot work of that day and that position. He had previously, in 1804, filled that very post on board the 'Camden' East Indiaman, in the singular action in which Captain Dance, with a fleet of ill-manned and ill-armed merchantmen, beat off an admiral and a squadron of ships of war. He served to the end of the war under Cornwallis, Strachan, and St. Vincent, and was wounded in a gun-boat affair at New Orleans. These were services sufficient to place his name in good

company and in an honourable, but not exceptional, position on the Navy List ; but though war was over and promotion won, the real harvest of his fame was yet to be reaped. Franklin's share in Buchan's maritime expedition for Polar research, was a prelude to that more famous expedition for the exploration of the North American coast, which he commanded from 1819 to 1822. There is probably no person present here who can require even a summary of the adventures of that protracted enterprise. His own lucid narrative has made every one familiar with its incidents. If it were necessary for me to measure off the 1200 miles more or less of coast-line which it added to our maps, or to enumerate its other contributions to the science which we cultivate and the knowledge of the world we inhabit, I should be at a loss to arrange and condense such materials. I should have been much tempted to ask your permission to depute such a task to another. The temptation were strong, for there sits among us one who shared the toil, the danger, and the glory of the undertaking—" *quorum pars ipse fuit*"—and I may well add, "*quæque ipse miserrima vidit*,"—one who could speak to the deeds performed and the results obtained ; to the fortitude, the endurance, and the skill of its commander ; and more than this, to the eminently Christian character of his nature, the tenderness, the humanity, the care for the lives of others of one so ready to risk his own, and in whom no experience of danger and suffering could dull the edge of honourable ambition or damp the fire of considerate daring. On these topics I could at best but give a digest of matter with which you are all familiar. Sir George Back, from the richer source of personal recollection, could adorn a subject which such an occasion as this, would not permit even him to exhaust. Still less can I venture on the sad details of the sequel, and look behind the half-lifted veil which still interposes between us and full knowledge of a catastrophe, which leaves us no room for doubt or hope. I cannot do justice to the gallantry of the efforts which have been made in search of that secret of the North—to the sacrifice of Bellot, which seems almost to have been an inauguration of our alliance with the country which gave him birth ; to the sympathy of America, which leaves us not without anxiety for the fate of Kane and his companions ; lastly, to the sacrifices and the sorrows of those whom I might not inappropriately address in the language of a tender and natural passage of Home's tragedy—I mean that where the heroine, forgetting the triumph of the moment in her woman's sympathy for the mothers and widows of the fallen foe, exclaims—

“ Ye dames of Denmark, 'tis for you I mourn,
Who, sadly sitting on the sea-beat shore,
Long look for lords that never shall return.”

So long as the name of Franklin shall be bright in the annals of British heroism, will the unwearied devotion and energy of his widow be with it, remembered and honoured.

Mr. George Bellas Greenough was born in 1778, his paternal name being Bellas, and the name of Greenough that of his mother. Educated at Eton and Cambridge, in 1798 he went to Göttingen to study law, but the racy and original eloquence of Blumenbach attracted him to natural science, which he never afterwards abandoned. At Göttingen also, he became the intimate friend of Coleridge. Learning the elements of mineralogy and geology under Werner at Freiberg, and improving his knowledge by travelling through Germany, Italy, and Sicily, he returned to England in 1801, and then explored the mining tracts of Cornwall and the Scilly Isles. From 1802 to 1807, an active member of the Royal Institution, he was associated, as its secretary, with Wollaston, Davy, Hatchett, Babington, and others. In 1806 he visited Ireland with Davy, and, accompanied by Mr. R. Hutton, made a geological tour. In the following year, 1807, he accomplished the establishment of an independent Geological Society, of which he became the first President. In that year also Mr. Greenough became a member of Parliament, in which he remained until the dissolution in 1812. He prepared himself for his duties by careful study of the great questions then before the country, and was known in committees for his diligent and conscientious investigation of facts. While preserving his own independence, he obtained for himself the high esteem and respect of the then leaders of liberal opinions. His own having been formed in the school of Adam Smith, Jeremy Bentham, Sir Samuel Romilly, and Francis Horner, were firmly and constantly maintained through life.

In spite of the opposition created in 1809 by Sir Joseph Banks, Mr. Greville, Mr. (afterwards Sir Humphry) Davy, and other leaders of the Royal Society, who wished to subject the publications of the new Society to the control of their own, Mr. Greenough steadily supported its independence, and the first volume of its ‘Transactions’ appeared under his renewed Presidency in 1811. He thus set the example, which has led to the establishment of other Societies devoted to special branches of science.

Though it is not my province to delineate the qualifications of Mr. Greenough in other sciences than geography, I would remind my auditors that as early as 1819 he published the work entitled ‘Critical

Examination of the First Principles of Geology,' which was translated into the French, Italian, and German languages, and elicited in the following year a warm encomium from the pen of the celebrated Jeffrey, then the chief editor of the Edinburgh Review. Well might the reviewer admire the intrepid honesty with which our deceased friend then overthrew some of the prevailing dogmas, in essays of which he himself spoke so modestly in his preface, as to say that, "before many years have elapsed, they will be found to contain as many errors as they presume to correct."

His chief geological work, the 'Map of England and Wales,' is indeed so intimately connected with our own pursuits that I am bound to notice it—the more so as it was the direct result of many years of arduous researches with his contemporaries, Buckland, Conybeare, and others. This map was not completed without laborious comparisons of the rocks of our island with those of various parts of the Continent, which latter he repeatedly explored. Whilst the cost of its mere publication was very considerable, it is right to state that his colleague, Mr. Henry Warburton, then a zealous member of the Geological Society, contributed largely towards this desirable object. As an Englishman I rejoice to advert to such liberality on the part of individuals in advancing science and in accomplishing works of which any Government might be proud.

From the year 1823-24, when he built his beautiful villa in the Regent's Park, to the close of his life, Mr. Greenough was the active and liberal promoter of science, an indefatigable member of the Society for the Diffusion of Useful Knowledge, and one of the original Council of the, then, London University. In the year 1831 he was, together with my predecessor, Sir R. Murchison, one of the first who met at York to found the British Association for the Advancement of Science, having already, the preceding year, assisted in the establishment of this Society, of which he was elected at once a Vice-President. Having gathered together a vast variety of maps from all countries, and having made himself a thorough master of the literature of our science, Mr. Greenough was subsequently elected President of this Society; and we justly refer to his Anniversary Addresses as evincing that precision of thought, that unflinching love of truth, and that undaunted perseverance, which were his constant guides.

In the latter years of his life his chief occupation was the completion of the geological map of India, for which he had been collecting materials during a long period—a work which, like all the efforts of the man, stands out as a great landmark, pointing the way to vast re-

searches, which, though of deep importance to our Indian possessions, have, until within the last few years, been unaccountably neglected by public men. In architecture as in archæology, Mr. Greenough was also a proficient, whilst he was a most devoted adherent to ethnology. Always justly considering that science to be interwoven with geography, it gave him sincere pleasure when, in 1849, these twin sisters were united, by the efforts of my predecessor, in one section of the British Association.

The last bequest to us, of his valuable geographical library, accompanied by a sum of 500*l.* to enable us to arrange the collections so given,* induces me to hope that our Council may direct a bust of our deceased friend to be placed near to these donations, with which he intended to enrich us, to be for ever a memento of the benevolent man, whose life was so usefully spent in diffusing knowledge among his countrymen. For, though Mr. Greenough was truly loved and esteemed by all those who had the privilege of his intimacy, and who were acquainted with his kindheartedness, sincerity, and modesty, I am assured, by one who well knew how to estimate his scientific merits, that nothing like adequate justice has been rendered to him in honorific distinctions either at home or abroad. Let it, therefore, be our pride thus to record our admiration of the deep-thinking philosopher and true geographer, George Bellas Greenough.

This is not the place, nor am I the person, to do anything like justice to the long public career, political character, and services of Mr. Joseph Hume. I may, however, in this chair claim the right to give my testimony to his services as a member of our Society and our Council. It is my right and duty to remind you that his association with us very lately brought into evidence a bright and constant feature of his character—the desire for the diffusion of sound knowledge among all classes of his countrymen. His known and proved hostility to all misapplication of public money, had given him a just and well-

* *Extract from Mr. Greenough's Will*, as forwarded to the Society by his Executors, Mr. R. Hutton and Mr. Decimus Burton.—“I place all that portion of my several collections of books, maps, charts, sections and engravings which relate to Geology and Geography, at the disposal of my executors, desiring that they will, within six months after my decease, divide and hand over the same to the Geological Society of London, and to the Trustees of the Royal Geographical Society of London, for the use of the Fellows and Members thereof, in such proportions and in such manner as may appear to them, my said Executors, most suitable to the wants and purposes of the said two Societies respectively, and most conducive to the advancement of Science; and I leave to each of the Societies aforesaid 500*l.*, wherewith to defray the expense of accommodating the collections so given, and in furtherance of such other objects as to the Councils for the time being of the said Societies respectively may appear most desirable.”

earned authority on all questions of its sound and judicious application. He had looked with an honest and intelligent eye into our concerns; he understood and sympathised in our objects; he had confidence in our intentions and means of usefulness, and he recognised and aided our claim upon assistance towards the first essential of our action and expansion. It is to him we owe in great measure, that I can address you for the first time in a locality of which all present must feel the advantage and convenience. It is to him in great measure that we have incurred an obligation which I hope we shall redeem—that of giving the public the fullest benefit of the instruments of research and instruction we have long possessed, but have hitherto scarcely been able to turn to account. I lament that he was not allowed to witness and to watch, as a member of our Council, the proceedings which he thus to the close of his life did so much to encourage. I had looked forward to this opportunity of returning my acknowledgments to the living; I can only use it for the expression of my respect for the memory of the deceased.

There can be few who for the last 30 years, or, I may say, the last half century, have been engaged in the public service—and in this term I include the scientific, the charitable, and the religious and educational associations of the country—who cannot say with me, that they have lost a friend in Sir Robert Harry Inglis. In the House of Commons, at Oxford, in the British Museum, wherever men of action, of thought, of benevolence, most do congregate, he will be missed and regretted.

Lieut.-Colonel John Augustus Lloyd, F.R.S., died at Therapia, from an attack of cholera, which seized him in the Crimea after the battle of Alma. He had been sent to the East on a mission to the Circassians; but on reaching head-quarters, he was detained there, and employed in observing the movements of the enemy, and in collecting information. Colonel Lloyd's love of scientific enterprise has rendered his career remarkable for more than 30 years. After passing some time in various islands of the West Indies, he resolved on exploring the American Isthmus: with this view, he obtained introductions to the Columbian liberator, Bolivar, who engaged him at once as an officer of engineers; and, after being employed for some time in other duties, he was supplied with instruments and assistants for the survey of the Isthmus of Panama. His progress, however, was interrupted by disturbances at Cartagena, where he assisted in restoring order, after receiving a severe wound, and narrowly escaping death.

He succeeded at length in forming another party, and without money, except from his own resources, he made a trigonometrical survey of the Isthmus of Panama, together with numerous topographical observations. An account of this survey was published by the Royal Society in 1830; and a paper on the same subject was contributed by Colonel Lloyd to the first volume of our Journal. The line of communication thus marked out, has now become the site of the railway between Chagres and Panama.

In 1831 Colonel Lloyd conducted the Thames Levelling Commission, under the conjoint authority of the Admiralty and the Royal Society. He was soon afterwards appointed H. M. Surveyor-General and Civil Engineer-in-Chief at Mauritius, where he constructed numerous public works, established an astronomical observatory, and made a trigonometrical survey of the island. His daring ascent of the Peter Botte mountain, unrivalled in the records of adventure, is described in the third volume of the Journal.

During Colonel Lloyd's engagement in the Mauritius he compiled a new map of Madagascar, which, with a paper on that island, was communicated to this Society in 1849, and afterwards printed in the Journal. In returning to Europe he visited Ceylon, and subsequently made a tour of inquiry to most of the principal observatories on the Continent. The organization of the Great Exhibition in Hyde Park presented a new field for his energetic talents, and he was selected by Prince Albert for the post of Special Commissioner in conjunction with Dr. Lyon Playfair. At the close of the Exhibition Colonel Lloyd's previous experience led to his appointment as chargé d'affaires in Bolivia. While in that part of South America, he continued his communications to the Society; and papers received from him appeared in the twenty-third and also in the last volume of the Journal. His return from Bolivia was soon followed by his mission to the East, where he fell a victim to the disease which has proved fatal to such large numbers of our gallant countrymen.

A friendship of long standing makes me one of many sincere mourners for the decease, which occurred a very few days since, of Lord de Mauley. He was one of those useful members of society who are ready to turn the advantages of social position and influence to the diffusion of knowledge and the promotion of scientific enterprise. On this head it is sufficient to say that he was among the earliest and most efficient promoters of the submarine telegraph.

Rear-Admiral David Price was an officer the narrative of whose services since 1801 fills pages in our naval annals. His death in

the recent unfortunate action at Petropolovski has been a subject of deep and general regret.

Francis H. Trithen, M.A., was an excellent Oriental scholar, and formerly, for a short period, our Secretary, until he was appointed Professor of Modern Languages at Oxford, where he died recently, at an early age, justly regretted for his amiable character.

Our obituary further includes the names of Mr. Henry English; Mr. William Newnham; Major-General William Sandwith; the Right Honourable Henry Tuffnell, M.P.; John Henry Vivian, M.P.; and J. E. Winterbottom, Esq., M.A.

Foreign Geographers deceased.—France has lost a very distinguished hydrographer in M. Beauteemps-Beaupré, one of our earliest honorary members, and chief of the French Hydrographical Office. At an early age his talents had raised him from the business of a map-seller to scientific distinction, and he was appointed first geographical engineer to the surveying expedition despatched by the French Government, under Admiral Bruni d'Entrecasteaux, in search of the unfortunate La Perouse. The construction of the atlas of this voyage afforded M. Beaupré an opportunity for improving the methods of hydrographical surveying, and the 39 charts which it contains were at the time unequalled. Under Napoleon I., M. Beaupré was constantly employed in surveying the rivers and ports of the North Sea, and in examining the Adriatic and other points to which the views of the Emperor were directed. But the great work, which occupied him more than twenty years, and which he had the happiness of being enabled to complete, is 'Le Pilote Français,' in six atlas-folio volumes, embracing a coast-line of 466 leagues, of 25 to a degree, and including 613 distinct works. M. Beauteemps-Beaupré died at the age of 82, after rendering eminent services to his country for 63 years.

Admiral Roussin, after obtaining much distinction as an officer of the French navy under Napoleon, was subsequently employed on an hydrographic survey along the coast of Brazil. He was President of the French Geographical Society in the years 1843 and 1844.

M. Rochet d'Hericourt is known for two explorations of Abyssinia, performed, the first in 1839, and the second between 1842 and 1845. His services to science were acknowledged by his appointment to the French Consulate in Abyssinia. He died lately at Djedda.

General Carbuccia, of the French army, a Corsican by birth, turned to profit a command held by him in Algeria for researches into the Roman geography and the archæology of the district of Bathua. He died lately, in his country's service, at Gallipoli.

M. Vattier de Bouville, brought up for the French interpretation service in the Levant, had furnished valuable notices of the geography of the Cyrenaica.

M. A. Michelot, a pupil of the Polytechnic School and an officer of much service, was author of several works on geography.

OUR OWN LABOURS.

Our labours during the past year have been attended by events not a little remarkable.

The return of Dr. Rae with substantial evidence of the traces of Franklin was soon followed by that of Sir Edward Belcher and his party, accompanied by Captain M'Clure; and shortly afterwards news arrived of Captain Collinson's safe exit from the ice on his way homeward. At the first evening meeting of the session, a paper by Dr. Rae, 'On the late Arctic Expeditions,' brought together several of the most eminent voyagers who have penetrated the Frozen Zone; and among those who joined in the discussion were Captain M'Clure, Captain Kellett, Colonel Sabine, Dr. Scoresby, Sir John Ross, Captain Inglefield, Commander Osborne, Lieut. Pim, and Dr. Rae. After the return of the Hudson Bay Company's land party, now travelling towards the mouth of the Back River, and of Dr. Kane and the expedition sent in aid of him, it may be presumed that further Arctic research will be left to the whalers in Behring Strait on the one hand and Baffin Bay on the other. The Americans, it is reported, have resolved on passing through Behring Strait to fish off the North coast of the continent; and it will be in your recollection that the value of the banks of the Mackenzie River, as a site for a fishing settlement, has been already indicated by others.

Our proceedings have drawn in a still more striking manner from the progress of exploration in all parts of Africa, the mysteries of which seem to be rapidly disappearing before the enterprise of the nineteenth century. The southern part of the continent is, in fact, becoming so important from the extension of commerce with the interior and the development of mineral wealth, that Her Majesty's Astronomer at the Cape of Good Hope, Mr. Maclear, urges the pressing necessity of an adequate survey of its shores; and a notice on this subject, communicated through the late lamented Sir George Cathcart, has been brought before us.

Mr. Andersson read an account of his journeys from Valfisch Bay to Lake N'gami, which he nearly perambulated, and of his ascent of the Tiogé River, accompanied by an original map of his researches

in these regions, the value of which we have to-day acknowledged by an appropriate testimonial.

Dr. Livingston's memorable journey from the Cape to Loanda has formed the subject of several communications. Fortunately the loss of his despatches in the 'Forerunner' did not deprive us of the original map of his route, now in our possession, and the narratives also will doubtless be replaced.

Farther North the Niger-Chàdda Expedition has realised, under the skilful management of our associate, Dr. Baikie, results that brighten the prospect of future operations on those great rivers. The hydrographical map drawn by his companion, Mr. May, R.N., from the original survey by the latter, both confirms and corrects previous results, including the reported course of the Chàdda laid down by Dr. Barth on his visit across the river to Yola.

Several letters relating to the Central African Expedition have been forwarded to us by favour of Lord Clarendon, and read at our meetings; and none have been more welcome than the tidings of Dr. Barth's safe return from Timbuktu to Kano, on his way to Europe. The most material contribution to geography among these papers is the map of a part of the Niger formerly traversed by Mungo Park, whose death deprived us of his observations. Dr. Barth followed the river on his return from Timbuktu, and the map delineates that part of its course between Garo and Say. Other maps necessary to complete his routes appear to have been sent to Europe, but have not as yet been placed before us.

From North-western Africa a narrative of a tour from the Gambia to the Salum River, by Governor O'Connor, has been read.

Eastern Africa has also contributed its quota to the geographical progress of the period under review. 'The Political Institutions and Present State of Abyssinia' formed the subject of a paper containing many details of interest to the geographer, the merchant, and the traveller. A collection of drawings made on both the shores of the Red Sea by the late Dr. Kirk has been added to our stores. Lieut. Burton's bold journey from Zayla to Harar, placed him in that city on an altitude of 5000 feet, in a delightful climate, on the eastern flank of the mountains, running N. and S., which appear to separate the waters of the Nile from those flowing to the Indian Ocean; and which are stated by the missionaries Krapf and Rebmann to ascend above the snow line in the two peaks called by them "Kenia and Kilimanjaro;" the same range farther S. forming also the probable basin of the Lake N'yassi. Lieut. Burton's subsequent disaster at Berbera, has suspended further operations in these quarters for the present.

A communication was also read from Dr. Rebmann, dated Kisuludini in Rabbai, S.E. Africa, containing an account of the Great Lake N'yassi, and of the tribes on its banks, obtained from a native of those regions in his service. This large body of water, so long since inscribed on maps, continues to be one of the most inviting features of that preponderating part of African geography which is only derived as yet from indefinite and unauthenticated reports. A visit to this lake, and the determination of its position, extent, and drainage area, remains a prominent geographical desideratum.

Passing to the Asiatic Continent, we have had Lieut. Burton's account of his journey from Medina to Mecca;* a letter from Mr. Wallace, dated Sarawak, describing his observations at Singapore, and a journey into the Malay Peninsula as far as Mount Ophir; an account of Frontier Tribes near Kohat, W. of the Indus, by Lieut. Sykes; Geographical Notes of Journeys in Persia by Mr. Keith E. Abbott, Her Majesty's Consul at Tehrán; and an Account of the recent Earthquakes at Brussa.

From America we have received 'Commercial Notes on California' by G. Aikin, Esq., Her Majesty's Consul at San Francisco; a paper 'On the Sources of the Purus,' a great tributary of the Amazon, by our associate Mr. Clements Markham; and before the closing of the Session Mr. Bollaert will communicate his researches on the Geography, Mineralogy, and Antiquities of Chile and Peru, during his last visit, from which he has just returned.

The North Australian Expedition which the Society brought under notice of Her Majesty's Government and the public in 1853, and has since constantly urged forward, was undertaken by the Colonial Office in 1854, and immediately provided for by a Parliamentary grant. It has at length, after sundry changes and delays, been forwarded a step by the despatch of four members of the party, with the stores selected in England, in expectation of meeting the leader at Sydney, where he is directed to join them from Western Australia. The party from England consists of Mr. Wilson as geologist, Mr. Baines as artist, Mr. Elsey as surgeon and naturalist, and a young botanist from Kew. This party is intended to be placed under the command of Mr. Augustus Gregory, a colonial surveyor in Western Australia, whose explorations in the interior from that settlement are known to the readers of our Journal. The expedition is, I believe, to be fully organized at Moreton Bay, whence it will be conveyed to the north

* Since writing the above, two volumes out of three have been published by Longmans, under the title of 'Personal Narrative of a Pilgrimage to El-Medinah and Meccah,' by Richard F. Burton.

coast in a steamer, which will remain in communication with the land party, as advised by our Council. Some account of this stage of the proceedings may be expected during our recess; and through the co-operation of the steamer it may prove practicable to forward occasional reports during the progress of the service.

An announcement was made to the Society by our veteran member Capt. P. P. King, of the capture of some cattle, which there was reason to believe had accompanied the missing explorer Leichhardt. Every opportunity will doubtless be taken by the North Australian Expedition to ascertain his fate. The exploration from South Australia, mentioned in my former Address, and for which the Government of that colony had voted 5000*L.*, has, I regret to say, not taken place.

Dr. P. C. Sutherland, an Arctic voyager and author, one of our associates, and to whom a collection of our instruments has been lent, has given us a very interesting account of his voyage to Natal, where he was when we last heard from him. He had kept up a series of trihoral observations throughout the voyage, embracing atmospheric and oceanic phenomena, and particularly the distribution and habits of marine animals. He has also specified some features of the currents on the African coast which deserve attention.

Another of our associates, Mr. J. G. Frith, has communicated a report of the discovery of a group of islands in the South Indian Ocean, by Captain J. S. Hutton, commanding the merchantman 'Earl of Eglintoun,' from Glasgow, on the 1st of December, 1854, in lat. 52° 56' S., and long. 73° 50' E. In the Nautical Magazine for April of this year, it is stated that Capt. Macdonald, of the ship 'Samarang,' had already reported the discovery of two islands, apparently of volcanic origin, one in lat. 53° S. and 72° 35' E., and the other in lat. 53° 3' S., and 73° 31' E. Capt. Cook, it appears, passed about 10 miles from the position of these islands in 1773.

Admiral Smyth, whom fame will always place chief among the hydrographers of the Mediterranean, has communicated to us a letter which he had received from Admiral Matthieu, relative to the progress of the survey in the Strait of Gibraltar, which appears to be nearly completed by the Geographical Engineers of the French navy, under Admiral Matthieu, who also intimates that a model is being constructed to illustrate the remarkable character of the soundings.

The Council Report has already told you of the assistance which has been rendered through your Secretary to Her Majesty's Government in the selection of candidates for paid lectureships on Geography. This circumstance is not only another indication of the esteem in

which the Society is held, but it also recognises the claims of Geography to more distinct cultivation in our colleges and schools, an allusion to which was made in my last Address.

The notice of our labours will be lightened by the recollection of the very agreeable duty we were called upon to perform by our brethren of the Geographical Society of Paris, who paid this Society the compliment to request that we would present on their behalf three medals with which they had honoured three of our own associates. To Captain M'Clure a gold medal was awarded for his discovery of the Arctic Channel between the Atlantic and Pacific, commonly called the North-West Passage; to Captain Inglefield a silver medal was awarded for Arctic discoveries in Smith Sound; and to Mr. Galton a silver medal was also given for his African Explorations. These honours were presented at a full meeting of the Society by your Vice-President, Sir Roderick Murchison.

The eighth part of the beautiful Atlas of Physical Geography, by our associate Mr. Alex. Keith Johnston, has appeared; among the entirely new maps in which we may mention with pride Sir Roderick Murchison's Geological Map of Europe.

Dr. Blackie's Imperial Gazetteer has been completed in two large volumes; and Messrs. Fullarton's sixth volume of the Gazetteer of the World has also been published. This great work is nearly concluded, as the seventh and final volume is promised to be ready in the beginning of 1856. Both of these excellent works are to be accompanied by new Atlases.

The English Cyclopædia of Natural History and Geography, by Mr. Charles Knight, continues to be regularly issued.

Mr. A. G. Findlay, already well known by his excellent work on the 'Pacific,' as well as for his various papers in our Journal, has constructed a new Chart of the English Channel with several improvements, including indications of the varying directions of the tides during ebb and flow, &c.

The works of Mr. Laurence Oliphant and Mr. H. Danby Seymour, on the scene of conflict in the East, have been presented to our library.

It is gratifying to observe that all the names just mentioned, are found upon the list of our Society.

A Decimal Compass Card, by Mr. J. M. Share, R.N., has been laid before the Council, and an account of it has appeared in the Proceedings of the Royal Society.

ADMIRALTY SURVEYS.

The Foreign and Colonial Surveys are ten in number : the former comprise the Baltic (where there are two separate parties employed), the Black Sea, China, South Pacific, and the Rio de la Plata ; the latter include Canada, Nova Scotia, the West Indies, Cape of Good Hope, and New Zealand.

The Home Surveys are also ten in number, four of which are employed on the coasts of England, three in Scotland, and three in Ireland.

While the greater part of these surveys have been going steadily forward, it will not create surprise that the war in which this country is involved has given an extraordinary impulse to geography, not so much from new surveys by our own officers, but by causing the surveys which have been executed by the Governments of Denmark, Norway, Sweden, Russia, and Prussia, during the last twenty years, to be made better known and more accessible. Many of these at the breaking out of the war were entirely unknown in this country, save in one or two collections, including Manganai's Atlas of the Black Sea, the Russian survey of the Gulf of Finland, Kliint's Coast of Sweden and Bothnia, the coasts of Norway and Lapland, and Lütke's and Reinecke's White Sea and Archangel.

The whole of these works, comprised in not less than 100 sheets, have been re-engraved, and published by the Admiralty within the last eighteen months or two years ; and any sheet of them may be purchased for 2s. 6d. These are positive additions to hydrography, of which but for the war we might probably have long remained in ignorance. Not only has an English edition of all these charts been published, but sailing directions for the coasts of Denmark, Sweden, the Baltic, Gulf of Bothnia, coast of Norway, White Sea, Black Sea, and Sea of Azov, have been prepared and freely distributed among our own fleet and that of our Allies. But while the war has suddenly brought these heavy demands on the resources of the Admiralty, the more peaceful labours of hydrography have not been unattended to ; and I am informed by Captain Washington that as many as 131,000 copies of plans and charts have been printed and issued by the Hydrographic Department in the course of the last twelve months.

England.—The general survey of the East Coast of England is completed and published on the scale of half-an-inch to a nautic mile ; the several harbours, rivers, and roadsteads are given on a scale varying from 4 inches to 20 inches to a mile, according to their importance.

Sheet 3 of the General Chart of the North Sea, which completes the series, has also issued from the Hydrographic Office during the past year.

On the South Coast of England, a portion of the coast of Dorset, the harbour of Lyme Regis, and the river Dart up to Totnes, have been surveyed; also a part of the coast of Cornwall, including the Manacles, Helford river, and Coverack harbour. On the West Coast the Cleddeu river, from Haverfordwest to Milford Haven, has been mapped, and a commencement made on the rivers Taw and Torridge, leading to Bideford and Barnstaple.

Scotland.—On the West Coast of Scotland a portion of the coast of Argyllshire, with Lochs Duich, Long, and Alsh, in Ross-shire have been mapped; and the much-wanted chart of the Great Minch (the intricate passage between Ross and the Hebrides) has been published. On the East Coast the survey of the Frith of Forth has been advanced, and will be completed this year. The Sailing Directions for the North-east Coast of Scotland, forming Part 1 of the North-Sea Pilot, are on the eve of publication.

Ireland.—On the North Shore a portion of the coast of Londonderry, including Port Rush and the river Bann, leading to Coleraine, has been mapped; on the North-west Coast, part of the shore of the county of Donegal; the North Shore of Mayo, from Killala Bay to Broadhaven; and on the South-west Coast, in the county of Kerry, the shore from Ballinskelligs Bay to Sneem in the Kenmare estuary.

Baltic.—Two steam-vessels, under Captains Sullivan and Otter, each with a complete surveying-staff on board, accompanied the fleet to the Baltic last year, and have done the same this season. With the assistance of the Masters of the fleet they surveyed Led Sound, in the Aland Islands, and the channel by which the ships went up to the capture of the fortress of Bomarsund. They also sounded the anchorage of Barö Sound; and otherwise obtained much hydrographical information, all of which has been published and rendered available for the Baltic fleet of the present season.

Black Sea.—In the Black Sea the surveying staff under Captain Spratt has been equally zealous, and has had more opportunity; it has completed plans of Bourghaz Bay, Varna, of Kustenjeh, and of the Sulina mouth of the Danube, on the western shore of the Black Sea; also of the bay of Koslú, near Bender Ereklí, in Asia Minor, where good coal has recently been discovered; with the harbour of Balaklava, Eupatoria, and Kazach and Kamiesh Bays, in the Krimea; and a plan

of the Khersonese peninsula, showing the position of the allied camps and batteries; also a plan of the battle-field of Alma.*

Cape of Good Hope.—The discovery of copper-ore near the mouth of the Orange River has led to the examination of that portion of the western coast of the colony by Commander Nolloth, R.N., of H.M.S. 'Frolic,' a full account of which has recently been published at Cape-Town, with plans of the anchorage. As one of our most distinguished Australian explorers, Sir George Grey, is now Governor of the colony, and Commodore Trotter, well known by his ascent of the Niger, is commander of the naval forces on the station, we may feel certain that if an opening is afforded, all that intelligence, zeal, and energy can do to advance the cause of geography, will assuredly be done.

On the eastern part of the Cape Colony a bank has recently been discovered by Lieut. Dayman, R.N., who is in charge of the Cape survey, off Algoa Bay, about 9 miles E. by S., by compass, from the lighthouse on Cape Recife. In steaming round the bank in H.M.S. 'Hydra,' as closely as the breaking sea would permit, he had one cast of the lead of $9\frac{1}{2}$ fathoms. Lieut. Dayman believes the bank to be that on which the East India ship 'William Pitt' was lost, with all on board, on the night of the 13th December, 1813. It was his intention to make a further examination of the shoal as soon as the state of the sea would allow of it.

China.—Besides some minor additions to our charts, Mr. Richards, of H.M.S. 'Saracen,' and his staff, have completed a fresh survey of the river Min, leading up to the populous town of Fu-chau-fu, the centre of the tea districts, which is now in the hands of the engraver. The demands of the war have led to the publication of a chart of the Sea of Okhotsk, from the Russian surveys; of the peninsula of Kamchatka, of Saghalian Island, and the entrance to the large river Amúr, in Tartary, and the islands of Japan, the greater part of which have only been known in their Russian form, and even in that shape to very few.

South Indian Ocean.—In the now much-frequented track from the Atlantic to Australia, round the Cape of Good Hope, vessels shaping a great-circle course will reach as high a latitude as 53° south, where they are liable to encounter icebergs. This, however, is not the only

* Captain Spratt was formerly employed under our associate Captain Graves in the Survey of the Archipelago; and while on that service he produced his work on Lycia, which, as Colonel Leake has truly observed, "has added very largely to those elucidations of the Geography of Asia Minor, both ancient and modern, which have, from the commencement of the Society, been considered an important object, and have been of the greatest service to science and literature."

danger, as there have been recently discovered some detached islands, which call for caution on the part of the navigator. A group to which the name of Macdonald Islands has been given, from the commander who first reported them, lies between $52^{\circ} 30'$ and $53^{\circ} 10'$ S. lat., and from $72^{\circ} 50'$ to 74° E. long. They would seem to be of volcanic origin; portions of the islands appeared as lofty peaks, visible 50 miles distant; their summits capped with massive clouds, with a block of elevated table-land between. The islands have been reported by four different vessels during the past year, three of which, singularly enough, sighted them within four days of each other, on the 1st, 3rd, and 4th December, 1854. It is still more remarkable that such bold, prominent land should not have been seen before.

Australia.—Seven sheets of the north-eastern portion of the country, including Torres Strait, have been issued by the Hydrographic Office, and a new chart of St. Vincent and Spencer Gulfs, in South Australia.

New Zealand.—The surveying party under Commander Drury have been engaged in Current Basin, French Pass, Sumner Bar, and Waimea River. They have added considerably to the soundings off the east coast of the Middle Island, and have examined the rocks called the Traps and the Snares, off the south extreme of Stewart's Island. It proves that the latter ill deserve their name, as they are bold rocks, rising 470 feet above the sea, and affording an excellent landfall for vessels passing to the southward of the group of New Zealand.

South Pacific.—By the last accounts from Captain Denham, he had just returned from the Fiji and Solomon Islands. In his tracks thither from Sydney, N. S. W., he had been enabled to sweep away some fabulous reefs from our charts of those seas. He had fixed the position of Raoul, a bold island in $177^{\circ} 55'$ west longitude, which rises 1627 feet above the sea-level; and of the North and South Minerva, between which islands he had obtained soundings at the great depth of 967 fathoms, and brought up a specimen of the bottom. He had also made plans of the islands of Moala, Angran, and Ovalaũ, in the Fiji group, and obtained some excellent meridian distances, which will enable us to correct the positions of many spots in that portion of the South Pacific. An outline of the whole of his observations is now being printed at the Hydrographic Office, and will be published and generally circulated in a few days, in order to enable geographers at once to correct their charts of those seas.

America.—The return of all our recent Arctic expeditions has enabled the chart of the Arctic regions from Behring Strait to Cape Farewell to be completed; and the chart of the whole of the

north coast of America is now published by the Admiralty. Could we for a moment forget the sad fate of our gallant countrymen, in search of whom these discoveries have chiefly been made, we might view this chart as a proud trophy of the undaunted courage, perseverance, and endurance, under hardships, of our Arctic explorers.

Nova Scotia.—The survey of the deeply-indented coasts of this country is proceeding slowly but surely. Captain Bayfield and his staff are employed near Halifax Harbour, where they have lately completed some important work; and Commander Shortland and his party are in the Bay of Fundy, where the Manan Islands at the entrance of the gulf have occupied them during the past season.

West Indies.—A survey of Caledonia Harbour and Port Escoces, in the isthmus of Darien, has just been completed by Mr. Parsons and his party. The chief interest attached to this survey is, that this port was at one time proposed as the eastern entrance of the contemplated ship-canal across the isthmus. He has also examined the Guincho and Lobos Cays, and the southern part of the Old Bahama Channel, bordering on Cuba.

ORDNANCE SURVEYS.

The discussion upon the progress of the Ordnance Survey in Scotland, more especially with regard to the scales of the surveys and of the published maps, has thus far been determined in favour of surveying populous, cultivated, or mineral districts on the scale of 1 to 2500, or $25\frac{1}{3}$ ($25\cdot344$) inches to a mile, or nearly 1 square inch to 1 acre. The survey is not to be engraved on this scale; but copies made by the anastatic process will be supplied on application, together with reference-books, stating the area of each enclosure.

The Highlands and other partially-cultivated and thinly-peopled districts are to be drawn on the scale of 6 inches to 1 mile. Plans of towns with more than 4000 inhabitants are to be drawn on the scale of 1 to 500, or $126\cdot72$ inches to a mile, or $41\frac{2}{3}$ feet to 1 inch. Copies of these maps are also to be supplied by the anastatic process.

Neither of the maps on these large scales will be engraved; but a general map of Scotland, on the scale of 1 inch to a mile, is to be proceeded with as rapidly as possible.

The survey of Scotland is now in the following state:—Six counties are engraved on the 6-inch scale, viz., Wigton, Kirkcudbright, Edinburgh, Haddington, Fife, Kinross; and the following six counties are drawn on the $25\frac{1}{3}$ -inch scale, viz., Ayr, Dumfries, Renfrew, Linlithgow, Peebles, Berwick.

Colonel James estimates the cost of the survey of Scotland in accordance with the Treasury minute of May 18th ult. ; the area of Scotland assumed to be 30,000 square miles :—

1. For Plans on the scale of 1 to 2500 (assumed for one half of Scotland)	£480,000
2. For Plans of the remainder of Scotland, on the scale of 6 inches to a mile	280,000
3. For the General Map of Scotland, on the scale of 1 inch to a mile, reduced from the large plans	67,000
	<hr/>
	£827,000
Deduct for work already done	150,000
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Total required to complete Scotland	£677,000

The time required for making the survey will depend principally upon the amount of the annual grants. With 70,000*l.* a-year, Colonel James assumes that it can be finished within ten years.

It is to be hoped that the termination of this debate will be followed by the rapid completion of the survey of England, which has been in operation for more than fifty years. Indeed, it has been in hand so long that the earlier sections will require to be resurveyed and re-engraved, in order to represent the numerous changes that have taken place in roads, and other important details, as well as to correct errors of observation which improvements in science have pointed out.

The General Map of England and Wales, on the scale of 1 inch to a mile, still remains unpublished northward of the parallel of Leeds. The survey of the six northern counties has, however, been progressing ; and the counties of Lancashire and Yorkshire are published on the 6-inch scale, while the county of Durham is drawn on the 25-inch scale.

France.—The French Dépôt de la Marine has published several important charts, which have been lately presented to this Society, among which may be particularly mentioned those of the Islands forming the Tuscan Archipelago, Elba, Capraja, Monte Cristo, Giglio, Pianosa, &c. ; and of the neighbouring coasts of the continent as far as Civita Vecchia. These charts are no less remarkable as works of fine engraving than for their useful and minute hydrographical details.

M. Vincendon Dumoulin, with a staff of hydrographical engineers, under Admiral Matthieu, has been employed for several months in executing a detailed survey of the Straits of Gibraltar, and of the adjoining coasts on the Atlantic and Mediterranean. The survey of the African side of the Straits has been recently completed, and the greater portion of the Gut sounded, during which it has been

ascertained that in some points it has a depth of upwards of 2000 fathoms.

The French Hydrographical Survey of the Coasts of Italy will be recommenced in the early part of next month, under the direction of M. Darondeau. This survey has been already completed as far as Porto d'Anzio, with the exception of the small interval between Savona and Bordighera, on the coasts of Western Liguria. During the past year the Charts of the Coast of the Roman States between Civita Vecchia and Porto d'Anzio have been completed; with detailed plans of the Delta of the Tiber as high up as Ostia, and of Porto d'Anzio, as well as of the Port of Genoa, and of the Coast on either side, between Voltri and Portofino.

Surveys of four of the principal Ports of New Caledonia have been sent home by M. T. de Montravel, commanding the French squadron, consisting of the ships 'Constantine' and 'Prony;' who reports the existence at Morare Bay of quantities of the very best coal. Orders have been given to execute a detailed chart of that extensive island.

Viscount Santarem, whose beautiful work on the discoveries of his countrymen the Portuguese, with its splendid illustrations, is well known, continues his work with his accustomed ardour and talent. During the last year he has had prepared a fac-simile of the celebrated Planisphere by the Camaldolese monk Frate Mauro, of Murano, which is now preserved in the Ducal Palace at Venice. The only authentic copy of this curious encyclopædia of geographical knowledge in the early part of the sixteenth century was hitherto in the possession of the East India Company. Viscount Santarem's fac-simile in six large sheets, kindly presented to us by him, is an exact reproduction of the original, and the first that has been published.

Our associate, M. Jomard, is publishing a series of Mediæval Maps and Portulans.

From M. de la Roquette we have received the Introduction to the sixth series of the '*Nouvelles Annales des Voyages*,' which, edited by M. V. A. Malte-Brun, will doubtless prove worthy of its established reputation.

Spain.—Among the contributions to the geography of Spain, since the publication of the great Geographical Dictionary of our corresponding member, Señor Madoz, may be cited, the numerous altitudes of several of the most remarkable points, determined barometrically by the distinguished geologist, M. Edouard de Verneuil. The tables which accompany M. de Verneuil's list of heights have annexed to them the geological nature of the localities, the principal

object of his researches. This able man has recently returned to Spain, and is at this moment engaged in mapping geologically the most desolate and uninhabited province of the Peninsula, Murcia.

It is with pleasure that I read in the *Bulletin de la Société de Géographie*, that the Spanish Government has ordered the construction of a general map of Spain, on the model of the new map of France published by the *Dépôt de la Guerre*.

Portugal.—Our associate, Mr. J. J. Forrester of Oporto, has published a new edition of his large map of “the Portuguese Douro, extending as far into Spain as the river can be made navigable.” This handsome map has been constructed from original surveys, conducted by Mr. Forrester at his own expense, in pursuance of his persevering labours for the development of the resources of our ancient ally, the importance of which has been publicly recognised by the Portuguese authorities. To this object Mr. Forrester has also contributed the work entitled ‘*The Oliveira Prize Essay on Portugal*,’ and a topographical map of the wine districts of the Douro. Our library has lately been enriched, through the Earl of Clarendon, by the presentation of the valuable series entitled ‘*Annales Maritimes e Coloniaes*,’ published at Lisbon from 1840 to 1846; as well as the chronological index of the discoveries and conquests of the Portuguese from the beginning of the fifteenth century.

Switzerland.—The large trigonometrical survey of Switzerland is in progress, under the superintendence of General Henri Dufour. It is engraving on 25 sheets; and our corresponding member, Mr. Ziegler, has transmitted to us an index map showing the present state of the publication. Mr. Ziegler’s communication treats on several interesting details of the survey, and he gives some striking instances of the comparative results of other independent geodetical operations on the French and German frontiers. Mr. Ziegler remarks that the completion of the Swiss survey will render it practicable to carry a line of levels from the Mediterranean and Adriatic across that country to the Atlantic and Baltic, with a view to the investigation of the relative altitudes of the sea in those basins. Another active correspondent of this Society in Switzerland, M. Paul Chaix, is of opinion that a comparison of the Swiss map with those of other European States will show that the vertical system of hill shading, is inferior to the method followed in the Swiss survey.

M. Chaix has been engaged on a detailed survey of the Protestant valleys of Piedmont, near Pignerol, inhabited by the Waldenses. During a recent visit, he was struck with the scanty information on

the existing maps; the scale of the present accurate and elegant Sardinian Staff map, 1 to 250,000, being inadequate for the introduction of the numerous hamlets and dwellings which cover the country. With the assistance of geodetical data, kindly contributed by the chief of the Sardinian Staff, M. Chaix has supplied this topographical detail in a map on the scale of 1 to 70,000; including the names of 495 towns, villages, and hamlets; 15 large valleys; 140 hills, mountain summits, and passes; 121 rivers and rivulets; and the heights of 119 points, 87 of which were measured by himself. The map will be accompanied by text, containing the latest accounts of this interesting seat of the Protestant faith.

Mr. Ziegler announces the completion of the large map of the canton St. Gall, in 16 sheets, and that the new sheets will be transmitted to complete the set presented to us. He also reports the interesting discovery of remains of Celtic buildings, utensils, and arms, exposed on the margin of the Lake of Zürich, near Meilen, during the low fall of the water in the past winter. The Antiquarian Society of Zürich have described the discovery under the title of ‘*Die Keltischen Pfahlbauten in Schweizerseen beschrieben von Dr. Ferdinand Keller.*’ Celtic traces have been found near Massedorf on the same lake, and also in the lakes of Bienne, Neuchatel, Geneva, Wallenstadt, Sempach, and Pfafficon. The positions are indicated on a map transmitted to the Society.

A reduction of the geological map of Switzerland, by MM. Studer and Escher von der Linth, has been published for schools, with emendations from their recent researches. The principle that the study of geography should include a general knowledge of geological structure, is adopted in the system of public instruction under the Cantonal Governments of the Swiss Confederation. With this view, the Canton of Vaud has charged M. de Morlat of Berne to make a compendious translation of Studer’s ‘*Geology of Switzerland.*’

During a visit to Madeira, for the benefit of his health, Mr. Ziegler collected materials and made original observations for a new topographical and physical map of the island, on the ample scale of $\frac{3}{4}$ of an inch to a mile. As a mark of respect to our Society, and recognising the interest of the English public in the island, Mr. Ziegler has requested permission to dedicate the map to this Society; and, bearing in mind the beauty of Mr. Ziegler’s previous works, including the collection of maps in his General Atlas, and the great map of St. Gall, this new map of Madeira will doubtless prove to be worthy of his high reputation.

Italy.—The Austrian Government has published four sheets of its large map of Central Italy during the past year, offering great interest to the antiquarian and historian, as embracing the country around Rome, accompanied by a general map of the Roman territory, distinguishing the regions where malaria and intermittent fevers are prevalent.

Since the occupation of Rome by the French, the officers of the staff have also been engaged on a survey of the environs of the Eternal City. It will consist of four large sheets, engraved on stone, and upon the same scale as the great trigonometrical map of France, 1 to 80,000. One sheet has been published, including Rome; the course of the Tiber from Rome to its mouth; the Alban, and a portion of the Volscian and Sabine chains, &c. The other sheets are in progress; and that including Bracciano and Civita Vecchia (South-Western Etruria) will be published in the course of 1855. The more minute topographical details of this, as well as of the Austrian maps above mentioned, have been derived from the accurate Cadastral surveys constructed by the Roman Government. On the French map the height of every important point has been marked; the ancient names of the more remarkable places have been added to the modern ones; the whole under the revision of the eminent Roman antiquarian and topographer, Commander Canina. A map of the country about Rome, in one large sheet, has been recently published there by Piale, and is perhaps the most convenient for the ordinary purposes of the traveller in his explorations of the localities of that classical region.

Ancient Ports and Harbours.—A work on the ancient geography of the environs of Rome has been published lately by Commander Canina in two vols. folio: one, embracing the ancient ports, is of considerable interest in a geographical point of view, as showing the alterations that have occurred during the historical period. The ports of Centum cellæ (Civita Vecchia), Ostia, and Portus Trajani (Porto), with the Delta of the Tiber, Porto d'Anzio (Antium), Astura, and Terracina, are illustrated by detailed plans of great accuracy of their present almost deserted state, with restorations representing what they formerly were, from the descriptions handed down by ancient writers, contemporary documents, such as medals, bas-reliefs, &c. The second volume includes the principal ancient sites of Latium, Etruria, and the Sabina, with maps of each locality. Connected with the same subject we may refer to Canina's work, published in 1854, on the Via Appia, which, in addition to a very accurate survey of that celebrated *Regina Viarum*, in consequence of the excavations executed in 1852-53-54 along it, contains an interesting dissertation on the length of the

ancient mile, and on the itinerary and other measures of length of the ancient standard of the Romans.

My predecessor in this chair, in the annual Address of 1852, had occasion to allude to the geodesic operations contemplated by the Roman Government along this celebrated artery of communication between the capital of the Roman world and its south-eastern provinces. It is well known that under Benedict XIV. the Jesuits Maire and Boscovich had been charged to measure two base-lines, one near Rimini and the other in the environs of Rome, and by means of an intermediate chain of angles to connect these two points, for the purpose of laying down an accurate topographical survey of the Papal States. Considerable doubts had been raised as to the accuracy of the measure of the southern base-line along the Via Appia, and the more so as one of the terminal marks had entirely disappeared. The excavations recently made under the directions of Commander Canina, and at the instigation of the late Minister of Public Works, Jacobini, afforded an opportunity of remeasuring the base-line on the Via Appia,—an operation which has just been completed by Father A. Secchi, Director of the Observatory of the Collegio Romano. The base-line on the Appian is nearly 8 miles long, extending from the tomb of Cæcilia Metella to near Frattocchie, between the 3rd and 11th mile of the ancient enumeration, and its extremities have already been connected with the principal trigonometrical stations about Rome. Padre Secchi is now engaged on the calculation in connection with the measure of the base, and will then proceed to that of the different sides of the angles uniting it with Rimini.

The recalculation of Inghirami's triangulation of Tuscany has been executed by his successor, Padre Antonelli, Director of the Observatory of San Giovanino in Florence. Some doubts had been raised respecting the accuracy of Inghirami's geodesical operations, arising from the discrepancy which their results, relating to the distance between the stations at Piombino and Elba, presented with those of the French surveyors Franchot and Puissant. Padre Antonelli has discovered that these discrepancies arose from an error in Inghirami's computations, and has established the accuracy of his observations. Padre Antonelli's work on the subject is preceded by a detailed biography of Inghirami, late corresponding member of this Society.

The Staff-corps at Turin is continuing the publication of the great map of the continental dominions of the King of Sardinia, which is expected to be completed in the next two years. Sixteen new sheets

of this map have been presented to us through the kind offices of our corresponding member Signor Cristoforo Negri, of the Foreign Office of Turin. The geological survey of the island of Sardinia, by General Alberto la Marmora, is still in progress.

The Papal Government has lately published plans on a large scale of some of its principal towns, including Ancona, Pesaro, Perugia, and Civita Vecchia. Those of Bologna, Urbino, Viterbo, Ferrara, and Ravenna are in progress.

The publication of the maps of the trigonometrical survey of the kingdom of Naples appears to have been interrupted for several years since the death of Cavaliere Amante, the head of the *Officio Topografico*. The King of Naples, however, on the application of the French Government, has consented to allow the French hydrographical surveying expedition, under M. Darondeau, to continue their surveys along his coasts; and it is the intention of that eminent engineer, when he has carried his operations as far as Terracina, to connect them with the Ponza Islands, and perhaps during the present campaign, to carry them as far as the headland of Gaeta, and hereafter to the extremity of the peninsula.

Germany.—The instructive series of volumes on the navigable rivers of Germany, written by Heinrich Meidinger, is now complete, and has been presented by the author to our library. The work is entitled ‘*Die Deutschen Ströme, in ihren Verkehrsund Handels-Verhältnissen mit statistischen Uebersichten*,’ in four parts, containing the Danube, the Rhine, the Elbe, the Weser, Ems, and Oder.

The topographical surveys of Nassau and another of the Saxon principalities are reported to have been commenced. The Government of Baden have also begun the publication of a map of that territory on the scale of 1 to 200,000.

The travels of Ulrich Jasper Seetzen through Syria, Arabia, and Egypt, in 1802-11, are at length to be published under the superintendence of several German scholars in Berlin. The volumes already issued are entitled ‘*Reisen durch Syrien, Palästina, Phönicien, die Transjordanländer, Arabia Petræa, und Unter-Egypten, herausg. und commentirt von Prof. Dr. Kruse, in Verbindung mit Dr. Hinrich, Dr. G. Fr. Müller und Mehreren anderen gelehrten.*’

In addition to the Scientific Transactions of various institutions, published in Vienna, Mr. Haidinger has transmitted to us a geological map of the neighbourhood of Krems, on the Danube, by Joh. Czjzek.

Our honorary member, M. de Hammer Purgstall, has presented his

academical treatises on the Camel and on the Arabic names in the Spanish language.

Holland.—Five new sheets of the topographical and military map of the kingdom of the Netherlands, by the officers of the general staff, have been published during the past year, and presented to the Society, together with charts of the coasts of Australia and Java, by the Chevalier Jacob Swart of Amsterdam, our corresponding member. The Royal Institute of Dutch India have also presented several works, specified among our donations, on Borneo, Malacca, and the Dutch possessions, published under its auspices.

Belgium.—The Etablissement Géographique at Brussels, under the able management of our associate M. Van der Maelen, continues its useful labours, among which the ‘*Carte Administrative et Industrielle de la Belgique*,’ in 9 sheets, has been added to our collection.

Scandinavia.—The Royal Society of Northern Antiquaries has held its Anniversary Meeting at the palace of Christiansborg, the King of Denmark in the chair, April 29th, 1855. During the last year the learned Secretary, Professor Ch. Rafn, had published a volume of his ‘*Annales*’ for 1853, and the ‘*Tidsskrift*’ for 1852-53; also a portion of Dr. Egilson’s Old Norse Poetical Lexicon. During the year 1853, M. Hammershaimb had visited the Faerøe Islands, and made a map of the Island of Vaagö, as well as of some of the other islands. Magnus Grimsson, of Reykjavik, had sent the first part of his *Travels in the southern portion of Gullbringu Sýssel* (or district), and intends furnishing an account of Ingolfs Landnam and the Thingsted on Kjalarnes. Dr. Rink, already so well known for his geographical explorations in Greenland, has presented a new map of Julianehaabs district, besides numerous drawings of remarkable ruins of European buildings in that part of Greenland.

ASIA.

Indian Surveys—Trigonometrical.—The Great Longitudinal Series, extending from the Seronj Base to Kurrachee, is completed. A base of verification has been measured at Kurrachee. The N.W. Himalaya Series, from the Meridional Arc to Peshawur, is also completed, and a base of verification has been measured near Attock. The triangulation along the Indus, to be connected with these two base lines, has been commenced. A Meridional Series from Ragoon, in the Jullender Dooab, is in progress. The N.E. Himalaya Longitudinal Series, extending from the Meridional Arc along the foot of the hills to the meridian of Calcutta, is completed; and a base of verification has been

measured at Sonakoda, on the north of that meridian. The triangulation of the Hurilong and Parasnath Meridians is also completed. Thus the entire triangulation of that portion of the Bengal Presidency, from the Meridional Arc to the Meridian of Calcutta, and from latitude 23° to the Himalaya mountains, is finished. A Longitudinal Series, from the Base at Sonakoda to Assam, has been commenced; and the South-coast Series, from Calcutta to Ganjam, to connect with the triangulation of Southern India, is nearly completed. The Bombay Trigonometrical Survey is in progress.

Topographical.—The N.W. Himalaya Survey, comprising the British territory from the Sutlej to the frontier of Ladak, is completed. The Survey of the Peshawur District is also completed. The Rawul Pindee and Jailum Survey, and the Ganjam Survey, are in a forward state. The Survey of the Neilgherries is finished. The Hyderabad Survey, which had been suspended on account of the disturbed state of the country, has been resumed.

Revenue.—These detailed surveys are based upon secondary triangulation, but, when adjusted by the stations of the trigonometrical survey, are perfectly available for incorporation into the Indian Atlas. Nearly the whole of the north-west and central districts of the Bengal Presidency and several of the lower districts are completed. The Survey of the Districts of Mymensing, Rajeshaye, Goalpara, Rohilcund, Bundelcund, Saugor, and Nerbudda districts, the Bori and Rechna Dooabs, are in progress.

Forty-eight sheets of the Indian Atlas have been published, and nine more are now being engraved under the superintendence of our associate, Mr. John Walker, Geographer to the Company.

Marine.—A Survey of the Mouths of the Indus, Coast of Scinde and Kutch, Gulf of Kutch, Bate Harbour, the Bombay Bank of Soundings, the eastern part of Palk's Strait, connecting the coast of India at Point Calimere with the north part of Ceylon, the coast of Pegu and Gulf of Martaban; a new Survey of the Strait of Malacca, the north coast of Sumatra, a Chart of the Arabian Seas, showing the winds and currents during the S.W. monsoon, compiled by Lieut. A. D. Taylor, I.N., have been recently published. A valuable set of Charts, showing the winds and currents for each month in the year, in the Indian and China Seas, the Red Sea, and the Persian Gulf, in 36 sheets, by Lieut. Fergusson, I.N., have lately been sent home.

The members who did me the honour to assist at a late evening meeting at my house, will join with me in acknowledgment of the favour conferred upon us, in the exhibition by Mr. Montgomery Martin of his admirable and instructive relief-model of India.

Tibet and China.—In the course of somewhat multifarious reading I have met with no work which has more agreeably occupied my leisure than the two volumes of *Chinese Travel*, by the French missionary, M. Huc, which form the supplement to the two before published of his exploration of Tibet. Of their literary merit I think there can be no question: it is such as even a foreigner can appreciate without much distrust of his judgment. M. Huc has the talent of dramatizing his intercourse with the natives of the Celestial Empire, and of throwing into every dialogue the odd combinations and incidents which result from the contact of mandarins and missionaries. He is neither harsh in his judgments nor mordant in his satire; but he has a vein of quiet irony which fills his pages with amusement to the reader. With respect to the more important topic of the value of the information contained in these volumes, M. de la Roquette, late the Secretary and now the Vice-President of the French Geographical Society, writes to the effect, that critics of high character for learning and impartiality are not wanting, who declare that if all pre-existing writings on China were destroyed, and those of MM. Huc and Gabet alone preserved, they would suffice to give a more exact and detailed account of that country, than we possess of the greater part of the countries of Asia. Mr. Walker, Geographer to the East India Company, informs us of the high opinion which Sir John Bowring entertains of the value of M. Huc's statements. In a purely scientific point of view, and considered with reference to the means, the opportunities and purpose of his journey, M. Huc must be regarded rather as an intelligent observer of men, manners, and scenery, than as a contributor to our treasures of accurate geographical data.

According to the Abbé Guillet, M. Krick, and another missionary, *en route* to Lassa, have been lately murdered on the confines of our Indian territories.

Siberia.—It is understood that the Russian Geographical Society is organizing an expedition for the scientific exploration of Eastern Siberia.

Japan.—Among recent events which will take rank in the history of the world, is the revival of intercourse which had been nearly closed for some two centuries, between two principal branches of the family of mankind, in the case of the United States expedition to Japan. The interest which I avow for myself in the concerns of that empire is not a new one. A good many years since I endeavoured to bring them under notice here, by contributing to the 'Quarterly Review' some articles founded on the narratives of the Dutch residents at Nagasaki, then the only European sources of information, Messrs. Meylan, Doeffer, and Fischer, whose works in the Dutch language were little, if

at all, known in England. I confess that at that time I saw little prospect of relaxation in the Japanese code of rigid exclusion without the employment of actual force. Neither could I altogether blame the tenacity with which that Government adhered to a system which, whatever its merits, had procured for that singular country two centuries of complete exemption from foreign war and internal convulsion, civil or religious; and had co-existed with a high state of Oriental civilization, and a very successful cultivation of many of the arts of peace. I knew that the limits of Dutch intercourse were gradually being contracted; that the annual visit to Jeddo had been reduced to one every four years; and I did not expect that any mere demonstration of superior power would be sufficient to induce a departure from the rule adopted on the expulsion of the Portuguese and the suppression of Christianity. The scientific information obtained by Commodore Perry and the officers of his squadron in their two visits to Jeddo, in 1853 and 1854, has not yet reached me in any shape; and what I at present know of the expedition is confined to the report submitted to Congress, principally advertg to the diplomatic and political incidents of his dealings with the Japanese. In the outset of this I was pleased to find that a member of our Society had, with permission of the Admiralty, been able to assist Commodore Perry, by placing in his hands a large quantity of charts of the seas in question. Admiral Sir G. Seymour, then in command in the Pacific, was the channel of this international courtesy, cordially bestowed and handsomely acknowledged. During Commodore Perry's movements in the China seas other opportunities occurred, and were not neglected, of cultivating such honourable and friendly relations between these two distinguished services.

With regard to Commodore Perry's observations on the Bonin Islands, however, it is with some little satisfaction, as members of the Geographical Society, we observe, that the first European occupation was by our President-elect, Admiral Beechey, then in command of H.M.S. 'Blossom;' and that the islands were next visited by our honorary member, Admiral Lütke, of the Russian navy. Captain Coffin, who, according to Commodore Perry, had visited the islands four years before Admiral Beechey, was well known as an Englishman to Mr. Arrowsmith and other geographical friends.

Borneo.—Two illustrated volumes have issued in the course of the last two years from the press of Amsterdam, furnishing very detailed accounts of the rivers of South-eastern Borneo. They are from the pen of Dr. Schwaner, formerly a member of the Commission for Natural Science in Dutch India, who in that capacity had, between 1843 and 1847, performed several journeys of exploration in Borneo,

and more particularly one through the heart of the island, from Banjermassin to Pontianak. After a residence in Java, he was on the point of returning to Borneo, in 1851, when death carried him off at Batavia, at the age of thirty-eight. Dr. Schwaner was a native of Mannheim, but had early transferred his services to Holland, and the present work is in the Dutch language. I have not had time to look carefully through these volumes; but from cursory inspection I should imagine that no work has yet appeared containing so much sound information as to the interior of this vast and little-known island; to which the exploits of one of the greatest men of our own or any time, Sir James Brooke, have lately given additional interest.

It will be remembered that, on the recommendation of the Council, Mr. Wallace, upon his return from South America, was kindly provided by the Earl of Clarendon with a free passage to the East; and a communication has since arrived announcing his arrival at Singapore. From Singapore he went to Malacca, where he visited several parts of the interior, including Mount Ophir, which he ascended, and, by means of careful observations with Adie's sympiesometer, ascertained to be 3920 feet above the sea. The mountain is isolated; its summit is almost pure quartz, becoming more or less granitic below; while at the base are highly inclined stratified rocks of a crystalline sandstone.

Adjoining the coast the province of Malacca is flat and swampy, producing rice. Low undulating hills of laterite rise out of these flats, and give an elevated appearance to the country, but they are quite isolated. The general surface becomes more elevated some miles inland, the base of Mount Ophir being, however, only 200 feet above the sea. This central plateau is intersected by wide, flat valleys, gradually contracting towards the interior into narrow winding channels, which seem to connect the low grounds on both coasts of the Peninsula. The charts also indicate the same character in the submarine structure of Malacca Straits. The whole country is a dense jungle.

Returning to Singapore Mr. Wallace met our medallist, Sir James Brooke, who at once offered him every assistance in his power in exploring the territories under his rule. Mr. Wallace writes from Sarawak, that he was much pleased with the appearance of the country, which seemed to offer good facilities for mapping.

AFRICA.

Our meetings for the year have been rich in the results of African exploration.

South Africa.—Dr. Livingston's unparalleled journey from the Cape of Good Hope through the interior has, since the last anniversary,* been continued with perfect success as far as Loando in the Portuguese territory on the W. coast. His map arrived here safely, but unfortunately the journals and communications which had been transmitted to the Society through our associate Lieut. Bedingfield, R.N., were lost in the 'Forerunner.' Dr. Livingston had left his friend Sekeletu with 27 men and oxen, as well as a consignment of ivory, entrusted to him by that chief. With this party he ascended the Leeambye and a portion of the Leeba flowing from the northward, as far as the Balonda country, which he found populous and well governed under a powerful chief named Matiamvo. Here the party left the boats and proceeded on oxback. The natives continued to exhibit great kindness as far as the borders of the Portuguese settlements, when exorbitant payments for passage were demanded, in accordance with the practice of these border tribes, which has hitherto effectually obstructed commerce, but which it is hoped will be overruled. After vainly endeavouring to avoid these plunderers, he succeeded in reaching the Quango, where a fortunate meeting with a Portuguese settler obtained him protection till he reached Cassange, in lat. $9^{\circ} 37' 30''$ S. and long. $23^{\circ} 43'$ E. From thence he proceeded without difficulty to Loando, where he was received with unbounded favour and hospitality by the Portuguese authorities and the whole population.

Heavy rain constantly occurred throughout the journey. The whole route passed over a plateau of extreme fertility, well watered, and populous, and great hopes are entertained of its being laid open to commerce and civilisation.

Dr. Livingston has left Loando to return with his party to Sekeletu, with a present of trade goods for that worthy chief from the Portuguese merchants. From thence it was the traveller's intention to follow the Leeambye, in the expectation of reaching Quillimane on the W. coast, where he hoped to find some means of returning to England, and begged that inquiries might be made for him by one of H.M.'s ships on the station.

In connection with Dr. Livingston's adventures, a communication has just been received by the London Missionary Society from his father-in-law, the veteran missionary Robert Moffat, who is stationed at Kuruman, and has spent nearly forty years in S. Africa. Finding that letters and parcels which had been transmitted for Livingston through a native chief had been detained, Mr. Moffat started from Kuruman with supplies for his brave son-in-law in June, 1854, ac-

accompanied by two traders, Messrs. Chapman and Edwards. This journey occupied seven months, and it is alone of great interest, relating to a beautiful, wooded, and well-watered country, occupied by a very powerful chief and warlike people. The dominions of this ruler, named Moselekatse, extend from the river Zambesé southwards, over an immense territory, to the river Limpopo, and eastwards towards the river Shash, a tributary of the Limpopo. It is inhabited by Matabele, or Zulus of the original stock, and by several other tribes, including the Bakone on the S., the Mashona on the N., the Batonga, &c. The town of Matlokoitloko in the Mashona country, where Moselekatse was residing, is 10 days to the southward of the Zambesé river. The Mashona speak the language of the Makalaka, a dialect of the Sechuana, which was reduced to a written form by Mr. Moffat, who has also translated and printed the Bible in that widely-spread tongue. Mr. Moffat succeeded in forwarding the supplies for Dr. Livingston to his friend Sekeletu at Linyante. He learned that the traveller was still on his journey to the W. coast, and was expected to return when the summer rains commenced. Mr. Moffat established the most friendly relations with Moselekatse, who could scarcely be persuaded to part with him, and at last gave him an escort and supplies for the entire journey to Kuruman. Further accounts of this interesting journey will, we hope, be made known from Mr. Moffat's journals.

In the South-western portion of the continent, Mr. Andersson, the companion of Mr. Galton, has continued with much success his explorations of the interior. The narrative we have received from him commences from Tunobis, in lat. $21^{\circ} 55' S.$, long. $21^{\circ} 1' E.$, which he had reached with Mr. Galton in 1852. A journey of some 200 miles, performed in 77 hours, brought him to the lake N'gami. The 77 hours must be understood as the time occupied in actual movement, principally through a dense thorn forest; for at Kolis, one of the five watering-places on the road, he was laid up for a fortnight by a wound received in collision with a black rhinoceros: "*cosas d'Africa!*" After nearly accomplishing a circuit of the lake, he, with the assistance of the native tribes, with whom he seems to have preserved the best relations, ascended for 13 days, the quiet and reedy stream of the Tiogé in a N.W. direction. In this time, however, so tortuous is the course of this river, he only made one degree of northing, and was then arrested in his course by the failure of further assistance from the natives, who decamped at his approach. His narrative contains, besides his own researches, some account of a Griqua expedition N. of the

lake, and much important geographical information, particularly as to the Namaqua country, with accurate latitudes of upwards of 60 places on his route.*

Chadda.—Of another expedition I am able to speak with unqualified satisfaction, as a great triumph of forethought, method, and civilised skill. I allude to the voyage of Mr. Mc'Gregor Laird's screw steamer 'Pleiad' up the Chadda. We have had so much reason to lament the sacrifices by which the knowledge attained of this part of Africa has been purchased, that our satisfaction with the scientific results of the present adventure has been immensely increased by the actual presence among us, in sound condition, of our associates, Dr. Baikie and Mr. May, who bear witness to the fact that, by a judicious selection of season and other precautions, it has been accomplished, not only without loss of life, but without serious injury to health. I may claim for this Society, and more especially for our late President, Sir R. Murchison, the credit for the origin and continued support to this expedition, which, under the patronage of the Earl of Clarendon, has been brought to such a successful issue. As an experiment and an example it is difficult to calculate its value. In regard to actual results, that value is considerable. Two hundred and fifty miles of the course of the Chadda, above the town of Dagbo, reached by Allen and Oldfield, have been added to our maps. Friendly intercourse with the natives has been established, with much promise for commerce and philanthropy, and much geographical and other information obtained as to the countries and tribes of the interior. This admirably-conducted expedition occupied about four months, from the 12th July to the 7th November. This signal and encouraging success is mainly due to the skill and care of Dr. Baikie, surgeon R.N., on whom the command of the expedition devolved in consequence of the lamented death of Mr. Consul Beecroft. Dr. Baikie's observations will shortly be published, together with a chart of the river by Mr. May, R.N., who accompanied Dr. Baikie as a volunteer by permission of his commanding officer, our associate, Captain Miller, R.N., and made the survey of this great navigable stream for some 600 miles of its course.

Portuguese Explorations.—In the earliest stage of this day's proceedings—the presentation of Dr. Livingston's medal—I adverted to

* From a communication just received, Mr. Andersson is informed of the arrival at Lake N'gami of Mr. F. Green, with a boat, in addition to the ordinary equipments of waggons, cattle, guns, stores, &c. Mr. Green's object is to penetrate the rivers to the northward of the lake, with a view to ascertain whether they reach the coast.

the diary of a Portuguese expedition of 1832, of interior exploration in Africa. This curious volume, prepared by Major Gamitto, second in command of the expedition, has been lately published at Lisbon, under the direction of Viscount Sa da Bandeira, and the patronage of one distinguished among the sovereigns of Europe for accomplishments in science and literature—the young King of Portugal. The expedition, commanded by Colonel Monteiro, and military in respect of numbers and equipments, penetrated from Teté, on the river Zambesé, about 23° S. lat., to the Cazembe territory, towards Lake Mufo, near Lunda, which it reached. The various tribes on the route are minutely described, and the descriptions are illustrated by some coloured engravings, which present strong evidence of fidelity. A map appended is unfortunately a mere march route, destitute of latitudes and longitudes. The two officers in charge of the expedition were the only members of the party who could read and write; a compass was the only scientific instrument provided for them; and the expedition must be considered rather as a preparative for further achievement than as affording much addition to geographical knowledge. The distance marched appears to have been some 300 Portuguese leagues, in a direction somewhat to the west of north. Very fertile tracts were traversed, and the communities encountered presented a rather advanced state of barbarous civilization. The author speaks hopefully of future intercourse across the continent between the Portuguese settlements, and repudiates vigorously the slave trade as the great obstacle to discovery and commerce. We may be glad to know that, with such sentiments, he has been appointed to the government of Teté, which has lately been formed into a separate administration.

Burton.—Not long ago, in glancing over the paragraphs of a German newspaper, certainly rather in search and hope of intelligence from the Crimea than from Africa, I stumbled on the pleasant news, brought by a Trieste Lloyd steamer, that Lieut. Burton had returned to Aden in safety from the expedition—which we knew he had planned, but hardly knew that he had attempted—to the Somali peninsula. This was shortly confirmed by a letter from himself to our Secretary, written in a spirit of dauntless joviality, which marks the character of the writer. The importance of his achievement, a visit to Harar, is not to be measured by the time which it occupied. Previously unvisited by Europeans, it was found in many respects to justify the earnest desire entertained by a deceased and distinguished member of this Society, Sir C. Malcolm, for its exploration. Though at no great distance from that torrid coast-line, where few but salamanders can

breathe, its elevation of some 5000 feet gives it the advantage of a comparatively temperate climate. Fortified sufficiently to repel the incursions of mounted savages, and under the rule of a young and very arbitrary sovereign, it is the rude emporium for a considerable traffic in choice products, more particularly coffee.

Lieutenant Burton's return to this country makes it unnecessary to anticipate his own fuller accounts of his achievements. He has unhappily to speak of less pleasant subsequent adventures. Landing again with a party of officers at Berbera, on the Somali coast, he with his party was attacked by robbers. He himself escaped with a severe wound; but one of his gallant companions, Lieutenant Stroyan, of the Indian navy, was killed on the spot. Lieutenant Stroyan, who had joined the Indian navy in 1841, was an officer of great promise, and scientific acquirements, which procured him employment in the survey of the West coast of India, and the rivers of the Punjab. He had volunteered on the exploring expedition, which terminated so soon and so fatally. Lieutenant Speke, another officer attached to the expedition, was also wounded, but has recovered.

The Nile.—A Sardinian merchant, Mr. Brun-Rollet, has returned from the White Nile, where he has established a station called Be-lenia, in 5° N. lat., and beyond which he has reached 3° N. lat. His map and memoir have been submitted to the French Geographical Society, and are in our possession. A portion, published by the French Geographical Society, contains information as to the course and sources of the great river, its affluents, and the ethnology of its banks. The sovereignty of some of these tribes, it appears, is in the hands of sorcerers, or of chiefs who assume that character. Power obtained by imposture has, however, its inconveniences; and in these countries the remedy for a long drought is to rip up the sovereign.

Suez.—The project of uniting the Mediterranean with the Red Sea has been of late warmly advocated by French authorities. M. Lesseps, formerly French consul in Egypt, has received from the Viceroy permission to organise a company for this purpose. Authorities are, however, widely divided as to the benefit likely to be derived from the execution of this project.*

Darfur.—The Bulletin of the Geographical Society of Paris contains an interesting notice of Darfur, gathered from the "djellabs," or native carriers, employed by the merchants for the traffic with that country. Some of the reports of these persons, after all allowance for

* See our Journal, vol. xxi. pp. lxxxiii and 88.

exaggeration, are calculated to excite curiosity. They speak of a mountain country south of Darfur which no one, not born in its precincts, is allowed to visit, and which, though tributary to the Sultan of Darfur, he equally respects, in virtue of some hereditary tradition. In another quarter report speaks of the ruins of a city of vast extent. These notices have been carefully collected by M. Cuny with a view to a journey on his own part to Darfur.

The Central African Expedition has been already mentioned, and I have only to add here, that near Kano, Messrs. Barth and Vogel unexpectedly met; and the latter, having been provided by the former with authority from the Sultan of Sakatu, intended to proceed to Adamawa, and return home by way of the Niger.

The original communications from Dr. Barth which have reached us, still remain too incomplete to allow of the investigation due to the importance of the geographical data presumed to have been accumulated during his prolonged absence. An original map has recently arrived of a portion of the Niger below Timbuktu, first traversed by Mungo Park, between the towns of Garo and Say; but no account of the data on which it is constructed is yet given, and the same observation applies to every other part of his routes. The maps of the routes from Katshna to Sakatu and Timbuktu, and from Timbuktu to Garo, as well as from Say back to Sakatu, and subsequently, have not reached the Society. The expected arrival of Dr. Barth will, it is hoped, be followed by the explanations that are necessary to establish the value of his arduous, protracted, and hazardous labours.

Dr. Vogel's observations and data up to his arrival at Kuka, have been received in the most satisfactory order through the Foreign Office, by direction of Lord Clarendon, and are now being examined by Mr. Arrowsmith. His observations include latitude, longitude, and altitude, as well as the temperature, pressure, and humidity of the air. The assistance which Dr. Vogel has derived from his scientific, hardy, and well-disciplined companions, Corporal Church and Private Maguire of the Royal corps of Sappers, has been brought before the Society through the interesting communications which have been read at our evening meetings. The death of Mr. Henry Warrington, to whose experience the expedition has throughout been so much indebted, was alluded to in a note in the last volume of the Journal. He was the son of Colonel Warrington, formerly consul at Tripoli, and became habituated from childhood to the people of Northern Africa. Perfectly familiar with the language and customs of the desert tribes, he possessed considerable personal influence among them. Mr. War-

ington accompanied Dr. Vogel to Kuka, and his untimely death occurred on his return journey, at the well 'El Dibra,' southward of Bilma.

ARCTIC.

Since our last meeting, one remaining subject of anxiety has been removed, by the intelligence received of the safety of Captain Collinson and the 'Enterprise.' Accident led Captain Collinson to follow closely on the track of the 'Investigator;' and the long and arduous toils of himself and comrades, commencing in January, 1849, have added not a little of importance to our geographical knowledge of the Polar Seas. From that date to her reappearance at Valparaiso in September last, all the credit is due to her commander and crew which can be earned by a successful struggle between skill and endurance with the dangers of Arctic seas and the tedium of three winters spent among them.

Since writing the above, I am indebted to Sir George Back for the following particulars of the expedition of Captain Collinson, to which I have just briefly alluded:—

"The safe arrival of the long absent discovery ship in the early part of this month most happily set at rest all anxiety for the gallant men who formed her crew, and, though there is nothing new to relate respecting her extraordinary voyage to that far-distant Polar Sea, yet the very fact of the skill and judgment displayed by Captain Collinson in bringing her home 'unto the haven where they would be,' stands out in such bold relief as to demand some record in this Address of her perilous escapes.

"In July, 1851, the 'Enterprise' was in the pack ice off Point Barrow, and after many interruptions in sailing between the ice and the land, on the 28th of August she had entered Prince of Wales Strait, where a depôt of provisions left by Captain M'Clure was found.

"An attempt to pass through the Strait was frustrated by a compact body of ice, and the remainder of the season was occupied equally fruitlessly in endeavouring to get to the northward. Thus baffled, the ship was laid up for the winter in a well-sheltered spot on Prince Albert's Land, in lat. 71° 35' N. and long. 117° 39' W.

"Travelling parties were organised during the spring of 1852, and while one under Lieutenant Parks actually reached Melville Island, and consequently went through one passage to Barrow Strait, the others explored several deep bays.

"On the 5th of August the 'Enterprise' was again free, but the

season was such 'a close one' that, by the 13th of September, she had merely penetrated to the head of a deep gulf in lat. $70^{\circ} 25' N.$ and long. $111^{\circ} W.$, thus ascertaining the continuity of Victoria, Prince Albert, and Wollaston Lands.

"Entering the Dolphin and Union Strait, and passing the mouth of the Coppermine River, 'after a hazardous navigation, owing to the increasing period of darkness and absolute inutility of the compass, she reached Cambridge Bay on the 26th of the same month,' and remained there for the winter. Ever active in the object of their mission, the usual exploring parties were despatched in every direction, and in lat. $70^{\circ} 3' N.$ and $101^{\circ} W.$ long. a cairn erected by Dr. Rae was found, 'from which they obtained the first intimation that any party had preceded them in the search.'

"It is worthy of remark that one of the Esquimaux who visited the ship had in his possession 'a portion of a connecting rod (iron), probably belonging to a steam-engine, as also part of a large metal crutch, on which were faint traces of a broad arrow.'

"Moreover, 'in the course of a visit to the Finlayson Islands, in a bay on the E. side, a fragment of a companion hatchway or door-frame, bearing unequivocal marks of having been fitted from Her Majesty's stores, was found.'

"On the 10th of August, 1853, the ship was liberated from Cambridge Bay, and wormed her devious course through the ice on her unwilling return along the coast, having been far to the eastward of her imprisoned consort of other days, the 'Investigator,' both arrested by the same cause; and after being frequently beset and thwarted, was still denied a clear escape from that encumbered sea.

"On the 12th of September the ship was frozen fast in Camden Bay, which enabled Captain Collinson in the following May to make an excursion to the Romanzof chain of mountains, where he reached a ridge 1600 feet above the sea.

"About the 20th of July, 1854, the 'Enterprise' was sailing to Point Barrow, and arrived there on the 8th of August, and subsequently at Port Clarence on the 21st."

Upon the melancholy subject of Dr. Rae's intelligence of the discovery of the remains of Franklin's expedition, you are aware that, while the relics obtained by him leave no room for doubt or hope as to the main fact, much doubt may exist, and much caution is advisable, as to some of the details gathered through the medium of an Esquimaux interpreter. In the reasonable hope that further light may be thrown on this sad page of Arctic discovery by the agency of the Hudson

Bay Company, I content myself with alluding to the fact that when Dr. Rae procured the intelligence before us, he was himself engaged in adding to our stores by a survey of the west shore of Boothia. Those who meanwhile would speculate on the information extant, will do well to study the report of a most able lecture, delivered in January last at Torquay, by that great and veteran authority the Rev. Dr. Scoresby. One remark I cannot help borrowing from him, that, putting out of question the loss of Franklin's expedition, the rate of mortality on board some 56 vessels employed in 38 years on the search has not exceeded, and taking individual instances has been far below, that of seafaring men lying in our own harbours.

I regret to be able to add nothing to the statement of last year, that Dr. Kane's expedition was last seen at Upernavik on July 20, 1853.

Although we feel no apprehension for the safety of Dr. Kane and his party, that excellent friend of Arctic explorers, Mr. Henry Grinnell of New York, writes to our Secretary that it has been thought advisable to despatch a relief party early rather than late. The United States' Government has therefore fitted out an expedition for the aid of Dr. Kane's party, which will consist of a screw steamer of 250 tons and a clipper bark of 327 tons, with 45 officers and men, commanded by Lieutenant H. J. Hartstene, U.S.N., and provisioned for two years. Dr. Kane will unhappily be disappointed in his search for Franklin, but we wish him the most gratifying success in his attempt to push research towards the Pole. The relief party starts on the 1st of June, and both are expected to return in October.

At one of our recent evening meetings Sir Roderick Murchison laid before us the design for a monument to be erected to the memory of Bellot. The choice of the site in front of Greenwich Hospital seems to me as appropriate as possible. The work itself will be what it should be—simple, durable, and conspicuous.

Count Francesco Miniscalchi Erizzo, a Veronese nobleman and a distinguished philologist, has been engaged for some years on a general review of Arctic discovery, which has just appeared, accompanied by several maps, three of which have been lately presented to the Society through our kind friend Mr. Pentland, who observes that, the Count having paid much attention to the labours of the early Venetian navigators, this part of his work will not be without interest. The rest of his book consists of a careful review of what has been done in more recent times as regards Arctic search, and he has drawn largely from English publications, to which he acknowledges his debt. The object of the author has been to make known to his countrymen, in their own

beautiful language, what has been done on Northern discovery from the earliest periods.

NORTH AMERICA.

British America.—From the ‘Canadian Journal of Science’ for 1854 we learn that by careful astronomical observations the longitude of Kingston, as hitherto given, has received a correction of nearly 8 minutes. From the same source we learn that Major Lachlan, one of the members of the Canadian Institute, has urged that provision should be made for taking and recording, at different points in Upper Canada, a series of simultaneous meteorological observations. He recommended also, in the second place, the establishment of a simultaneous record of the rise and fall of the great Canadian lakes throughout their whole extent.

A number of large specimens of the ores, marbles, and other natural productions of Canada have been transmitted to the Great Exhibition of Industry at Paris, in charge of Mr. Logan, so deservedly known as a geologist.

Of the Canadian railways upwards of a thousand miles are completed, and more than two thousand miles in addition are more or less advanced.

I have already alluded to the importance of the Mackenzie River in connection with the extension of the whaling-trade through Behring Strait. Nor should the development of communication between the Atlantic and Pacific shores of the British possessions, so warmly advocated by some of our members, be lost sight of. The first step in this direction must be such a reconnoissance of the country to the west of Lake Superior, as the United States have carried out in several directions in their own territory under the adventurous guidance of our medallist Frémont and other talented officers.

The geological survey of Canada proceeds under the able guidance of Messrs. Logan, Murray, and others; but the inaccuracy and defects of the maps, *even of the settled districts*, were found to be so great, that Mr. Logan had to go over the whole ground on foot, and to measure by pacing the distances travelled. The necessity for a good map, after this, needs no further demonstration.

United States.—It is proposed to carry out a topographical survey of the region which intervenes between the head waters of the Mississippi and the Pacific, lying between the 46th and 49th parallels, including a map of the New Washington Territory and passes of the Rocky Mountains as yet but imperfectly surveyed. This is one of the

enterprises which owe their origin to the growing desire for railroad communication between the Atlantic and the Pacific. It is stated that every precaution has been taken to conciliate, or, if necessary, to repel, the Indian tribes on the line; and that the assistance of the Hudson Bay Company may be depended upon in the service of Governor Stevens, the leader of the expedition.

Coast Survey.—Our library has been enriched by an invaluable mass of hydrographical information in Professor Bache's Report for 1853 of the United States Coast Survey. The operations it describes cover submarine ground of great interest to the navigator along the eastern seaboard of the States, from Nantucket to Texas; and, jumping the continent, we find the accomplished surveyors of the States at work along the coast of California, and at the mouth of the Columbia. The difficulties overcome in many portions of these operations—for instance, where the treacherous submarine district of Nantucket has to be mapped without the assistance of sea-marks, along a coast which scarcely elevates itself above the water—will be found well described in this Report, and will be duly estimated by all navigators.

Among recent American publications I know of none more worthy of notice and encomium than the narrative of the expeditions conducted between 1850 and 1853 by the parties employed on the United States and Mexican Boundary Commission, published at New York, by Mr. John Russell Bartlett. The author divides his narrative into eight distinct journeys, embracing altogether an extent of some 5000 miles of land-travel. His own enumeration and description of them will give the best idea of his perseverance and exertion. The first is from Indianola, the place of disembarkation in Texas, to El Paso del Norte, 850 miles. The second is to the Copper Mines of New Mexico, in the Rocky Mountains, near the Rio Gila. The third to the interior of Sonora and back. The fourth from the Copper Mines, along the boundary-line south of the Gila, to the Rio S. Pedro, and to Guaymas, on the Gulf of California. The fifth, voyage to Mazatlan and Acapulco, and thence to San Francisco. The sixth, journeys in California. The seventh, from San Diego, by the Colorado and Gila rivers, to El Paso del Norte. Lastly, journey through the States of Chihuahua and Durango, and the south-western corner of Texas, to Corpus Christi, on the Gulf of Mexico. The work is an itinerary, minute, as it ought to be, for its purpose of affording information to future emigrants and other travellers. For my own part, I have an affection for a diary; and though I do not intend, nor indeed am much tempted by the author's descriptions, to follow his daring and arduous course, I have read him with much

pleasure. As the work has been published without the assistance of Government, the author has been deterred from the expense of publishing the full amount of his ethnological and other scientific observations. If these were published, philology would be able to add to its list some twenty vocabularies of the fast disappearing aboriginal tribes of this vast and little-known region. One of the collections alone, of several sent home by gentlemen attached to the expedition, is said to have contained specimens of one hundred hitherto undescribed species of North American vertebrated animals. In artistic drawings, mineralogical and botanical collections, the results of this expedition were equally rich. As the expedition was fitted out with all appliances for its essentially scientific purpose, and as Mr. Bartlett had able subordinates, its geographical and geodesical observations were doubtless such as may be supposed from the scientific attainments of our brother geographers of the United States. Without presuming to lecture other Governments on the appropriation of public funds, I may, as a geographer, express my hope that the liberality of the Government of the United States may be extended to the full publication of such stores of science as those accumulated by Mr. Bartlett and his learned and adventurous associates.

With a view of rendering the various proposals for the simplification of weights and measures, now under the consideration of several governments in Europe and America, conducive to the establishment of a uniform and international system, the American Geographical Society has memorialised Congress to take the question into consideration, and to consider the expediency of endeavouring to bring about an international meeting to procure the adoption of uniform standards.

We have received from our associate, Mr. Schoolcraft, his summary narrative of an exploratory expedition to the sources of the Mississippi River in 1820, resumed and completed by the discovery of its origin in Itasca Lake in 1832, together with reports, &c.

Central America.—The establishment of communications between the Atlantic and Pacific, across several parts of the American continent, must continue for a long time to excite enterprise and geographical investigation. The twenty-fourth volume of the *Journal* contains three papers relating to this object. Commander Prevost's narrative describes a part of the operations for the survey of the Isthmus of Darien, undertaken by the British in conjunction with the Governments of France and the United States, at the instigation of Sir Charles Fox and Company. It might have been expected that this powerful combination would have elicited the fullest knowledge of the limited area

selected for survey ; but the result has unhappily proved the contrary, involving the loss of several invaluable lives, and the total failure of the expedition.

Our associate, Mr. John Power, of Panama, to whom we are frequently indebted, sent us an original sketch of the route of Captain Prevost's party, drawn by himself from the notes of Mr. Kemmish, C.E., who accompanied the party, and who had started again to explore the country between the Chuquanaque and the Atrato, where level ground was said to exist.

The Government of the United States has handsomely awarded a gold medal to each of the officers, and 100 dollars to each of the crew, of H.M.S. 'Virago,' engaged in rendering assistance to the party from the United States, employed in the Darien expedition under Lieut. Strain.

During the past year an account has been published, by Mr. Trautwine, C.E., of Philadelphia, formerly engaged on the Panama Railway, describing his survey of the Atrato, and the most promising tracks between that river and the coast of the Pacific running parallel to it. He reports that a ship-canal is out of the question, and that even the expense of a canal for steam-boats of only six feet draught would not be justified by the traffic that could be reasonably anticipated.

The completion of the survey of the coasts on both sides of the narrow isthmus extending from Lake Nicaragua to the Gulf of Darien, together with the course and elevation of the rivers and water-parting, still remains a desideratum, and would be a great acquisition to geography and the various interests connected with our science. That insuperable obstacles to a well-conducted exploration, exist within this contracted area, cannot be allowed ; nor can the subject be deemed unworthy of effort, although it remains a question with many, whether the freest confluence of the waters of the two oceans, through *any* part of Central America, would, for various reasons, contribute *greatly* to the general interests of the commerce of the world, or offer facilities, except to the coasting-trade of the contiguous territories, and in the development of their natural wealth. Some idea of the resources of Central America may be derived from Mr. Smith's paper on Burica, just published in the twenty-fourth volume of our Journal.

North and south of the isthmus, the establishment of commercial routes, and the extension of settlements from east to west, are giving importance to vast territories yet unoccupied and but little known.

SOUTH AMERICA.

From South America we learn that the old stimulus which has in all ages been an instrument in the hands of Providence for the inquiries of science, the advance of civilization, and the diffusion of population, the *auri sacra fames*, is at work in the rich valley of the Amazon. From Lima we have received detailed notices of an American expedition directed by Mr. Talbot, which left Callao in January for the Marañon. The accounts of this enterprise, so far as they have reached me, are more remarkable for details of danger from rapids on the Amazon and hardships, than for scientific additions to geographical knowledge; but such parties travelling with such objects, are the pioneers of science, and the presumed mineral wealth of the Amazon and its tributaries bids fair to bring under notice an immense region hitherto little explored.

Some idea of the capacities of the countries drained by the Amazon may be formed from the rough estimate of them to be found in Lieutenant Maury's excellent Address of last year to the American Geographical Society. He calculates that with a population equal to that of Belgium to the square mile, the basin in question would sustain 600 millions of human beings. Such a population, however, would be a niggardly allowance to a temperature of constant fertility through the year, and a soil the average richness of which is computed at four-fold that of Belgium. If we look to facts like these, we may well pause before we assume that the world is in its dotage, or its destinies nearly worked out.

I had occasion last year to hail the appearance of the volume of Lieutenant Herndon, of the United States Navy, describing his descent of the Amazon. I have very lately received its supplement, in the narrative of Lieutenant Gibbon, the companion from whom he parted in the upper waters. It appears to me, on cursory inspection, in all respects a fit companion volume for its excellent predecessor.

The paper by our lamented associate Colonel Lloyd adverts to the line of communication by way of the Amazon and its tributaries. His original survey of the Isthmus of Panama in 1828-9 formed the subject of his paper in the first volume of the Journal, and was the forerunner of the recently completed Panama Railway. His late occupation of the post of Chargé d'Affaires in Bolivia led him to examine the difficult mountain route from Cochabamba to Chimoré, leading to the Amazon, which is sometimes taken to avoid the longer sweep of the ordinary traders' route by way of Santa Cruz and the Valley of the Rio Grande.

His report of this route is not favourable; and his opinions of the communication between Bolivia and the Atlantic, by way of the Amazon and its tributaries, seem to be tinged by the various disagreeable circumstances connected with his proceedings. If the immense fertile interior of South America is to be laid open to industry and commerce, it must be through the navigation of its great rivers, which also present direct channels of communication between the Atlantic and the States on the Pacific.

New Granada.—We learn from the last Report of the Secretary of State that of the thirty-six provinces into which the Republic is divided, the maps of twenty have been completed, including Panama, Azuero, Veraguas, and Chiriqui; but these four have not yet been presented. During the present year the provinces of Cauca, Popayan, and Buenaventura are to be surveyed, and then the contract made by the Government with Colonel Codazzi terminates, but the Secretary recommends that his services should be again engaged by the nation to finish the survey of the remaining thirteen provinces.

Peru and Bolivia.—M. de Castelnau, whose geographical labours have been alluded to in former Anniversary Addresses, has recently completed the publication of the detailed itineraries of his journey from the Coast of Brazil to his descent of the Amazon. These itineraries, which are very minute, will prove useful in the construction of maps of South America, when connected with points the position of which has been determined astronomically; for unfortunately all the astronomical observations made during the expedition of which M. de Castelnau was the chief, were lost by the robbery and death of the young savant, M. d'Ossery, by whom they were made. M. de Castelnau is now engaged, aided by several distinguished naturalists, in publishing the Zoological and Botanical portions of his expedition, in doing which he has met with the most liberal encouragement and assistance from the Emperor of the French.

Chile.—Mr. Gaye's great work on Chile, which embraces not only the political but the natural history of that State, and which has been published under the patronage of the Chilian Government, has made considerable progress since it was last noticed from this Chair. The whole of the Zoological and Botanical portions have been completed as well as the maps of the country. Mr. Gaye is now engaged in printing the Meteorological and Magnetical Observations, which will complete a work for which he deserves the greatest praise.

The Government of Chile, finding that the best maps hitherto published of its territory were very incorrect, has recently decided to have

a more accurate survey made, and for this purpose has employed M. Pissis, a French engineer and geologist, assisted by several native officers. M. Pissis has already published the description of the provinces of Santiago and Copiapo, with a list of several geographical positions determined during the survey. He has also remeasured the highest peak of the Andes, the so-called volcano of Aconcagua, which he found to be only 22,296 English feet, instead of 23,910, as deduced from Beechey's and Fitzroy's observations.

AUSTRALIA.

The few remarks that I have had to make respecting this portion of the world have been anticipated under the head of "Our own Labours," and elsewhere in the pages of this Address. From our associate, the Rev. W. B. Clarke, we have received a communication on the Elevations in York Peninsula, derived from barometrical observations made by himself and the late Mr. E. B. Kennedy.

According to Captain Denham, of H.M.S. 'Herald,' the fate of the late Mr. B. Boyd has been definitively ascertained. It appears that he was put to death within a day or two of his capture on the island of Guadalcanal, and the only trace obtained of him by Captain Denham was his tomahawk.

CONCLUSION.

It now only remains for me to solicit your indulgence for the imperfections and shortcomings of the summary I have endeavoured to furnish of the progress of geographical science, enterprise, and discovery during the past year. It will be a consolation to you, as it is to me, to know that this subject and its treatment will be for some time in abler hands: and when I inform you that Admiral Beechey will fill the chair I am about to vacate, it is tantamount to saying that each and every deficiency under which I have laboured will be henceforth supplied; that you will hereafter have no knowledge trimmed and dressed up, and dressed by an indifferent cook, for a special occasion, but the outpourings of sound learning long accumulated and overflowing. I can promise him from experience the assistance and support of able and willing councillors; and I can have little doubt that the missionaries of science, the Livingstons, the Barths, the Burtons, and the Anderssons of his reign, will make it Augustan. There are hopes and prospects which more than diminish any regret I might otherwise feel on vacating, what your indulgence has made, an

easy chair. In some casual reading of that very delightful periodical, the 'Revue des Deux Mondes,' my eye was lately attracted by an expression which I think very happily illustrates the relative position with respect to science of myself and many others. I may claim to rank among the consumers of science. I may hope that such positions as the one I am about to vacate, may be occasionally held, without serious detriment, by one of that class; but I cannot disguise from myself that as a rule they must be better filled by a master manufacturer of the article; and I have the satisfaction to know that I transfer my functions to a Deacon of the craft.

In addressing many years ago a very eminent assemblage of the British Association at Manchester, I could find no better or truer illustration of my position than that of one who, from the valley of Chamouni or Grindewald, watches the progress of some party scaling the highest summits of the Jungfrau or Mont Blanc. My words were then addressed to men of attainment in all the highest departments of human research. They could not with greater propriety be applied to the Bessels, the Sedgwicks, and the Herschels, by whom I was then surrounded, than to those with whom this Society is specially concerned, and many of whom it counts among its associates—to those who by sea or land are volunteers in the van of the great march of science, civilization, and Christianity—to the Franklins, the Livingstons, the Baikies, Galtons, Anderssons, and Barths, whose achievements it is the object of this Society to watch, to record, and, according to our means, to extol and to reward.

There are some functions which I should, as Vice-President or as a simple Member of the Society, be reluctant altogether to resign; and I have been better able than most men, from mere accidents of residence, to collect together, with the least inconvenience to the greatest number, the members of this and other kindred Societies. If I am not wrong in supposing that such opportunities of occasional intercourse, to use an expression of Lord Stowell, "lubricate the wheels of science," I may hope, the accidents of life permitting, to retain, as a simple member of this Society, the honour, the privilege, and I must add, the singular pleasure to myself, of promoting such intercourse which I have enjoyed as your President.
